

MONTHLY

MAY, 1928

No. 268

HITCHCOCK'S MACHINE TOOL BLUE BOOK

DIRECT MAIL ADVERTISING

to

*Industrial Machine Shops
Automotive Plants
Railway Mechanical and
Purchasing Departments*

**AND ALL OTHER
MACHINE TOOL
USERS**

**Controlled Circulation
25,000 Monthly**

Published By
**HITCHCOCK PUBLISHING CO.
508 So. DEARBORN ST.
CHICAGO**

XU

A fully-enclosed motor at low cost!



You can now have fully-enclosed induction motors without excessive cost. The Reliance method of fully enclosing with fan cooling makes it possible in most cases to obtain the same horsepower and speed rating as would be obtained from an open motor of the same frame size. The construction is simple and the installation is exactly the same as the ordinary open motor.

Bulletin 102 tells in detail why this motor will operate in dirty places with less maintenance and last longer than open motors.

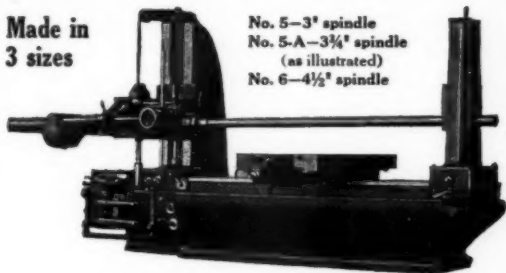
Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, Ohio

Branches: Boston; New York; Pittsburgh; Cincinnati;
Detroit; Buffalo; Philadelphia; Chicago; Birmingham

RELIANCE ^{AC} MOTORS
with Ball ^{DC} Bearings

Wide Range and Efficiency

Made in
3 sizes



No. 5—3" spindle
No. 5-A—3 $\frac{3}{4}$ " spindle
(as illustrated)
No. 6—4 $\frac{1}{2}$ " spindle

Defiance No. 5-A

Horizontal Boring, Milling, Drilling, and Tapping Machine

In designing these machines, range and efficiency were both considered, both provided for. Simplicity, great strength and ample power secure the operating conveniences necessary to handle the wide range of work with efficiency and profit.

Four in One—And All Efficient!

Boring, Milling, Drilling and Tapping to meet every requirement of machine tool users where intensive production and precision work is a factor of importance. Objectionable features, such as complication and inaccessibility, have been carefully guarded against. The speed mechanism, feed mechanism and contents of the spindle housing are of unit construction, and each unit affords full access without disturbing parts of other units.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works

Defiance, Ohio

Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery

Operating Convenience—



One of the Many
Features of the
"American"
Maxi-Speed
Ball-Bearing
Sensitive Radial

Ball Bearing
throughout with
speeds from
500 to 2000
R. P. M!

Speeding up production means not only penetrating metal faster, but also reducing the handling or resetting time to a minimum. The "American" Radial is the acme of operating convenience. All operating levers are placed on the head, including the feed lever, which usually is used more than any other. This advantage, plus the unusual power and speed, help to raise the line on the production sheet.

Two types of motor drives are offered—Adjustable Speed Simplified Motor Drive for Direct Current (shown above) and Constant Speed Simplified Motor Drive for Alternating Current. Also furnished with belt drive if desired.

*Let Us Help You with Your Drilling Problems.
Send for Complete Descriptive Folder.*

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS

HISEY

—announces

3

New Electric Tools

Here's value that invites comparison.

Hisey designed and built hand wound Universal Motor.

Adjustable Bakelite Brush Yoke.

Double Pole (Underwriters approved) switch.

Ball Bearing Motor and Spindle Thrust.

Hardened Alloy Steel Gears.

Hisey designed ventilation.

(No holes or open slots)

Jacobs Chuck.

Six Inch Ball Bearing Grinder Built To The Hisey Standard

Full $\frac{1}{4}$ H. P. enclosed HISEY Motor. Built for continuous service. Heavy one piece Spindle mounted on oversize Ball Bearings. Dust proof bearing compartment.

Double Pole (Underwriters Approved) Switch. Sturdy and adjustable Tool Rests.



$\frac{1}{2}$ " Special
Ball Bearing
Electric Drill

\$53



$\frac{1}{4}$ " Ball Bearing
Electric Drill

\$35

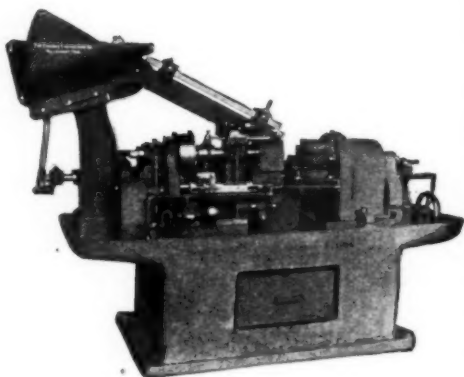


$\frac{1}{4}$ H. P. Ball Bearing
Grinder

\$52

The Hisey - Wolf Machine Co.
Cincinnati, Ohio

Authorized Distributors Everywhere



Economy Automatic Combined
Pointing and Threading Machines

**REDUCE
BOLT COSTS**

THE ECONOMY ENGINEERING CO.

WHY ?

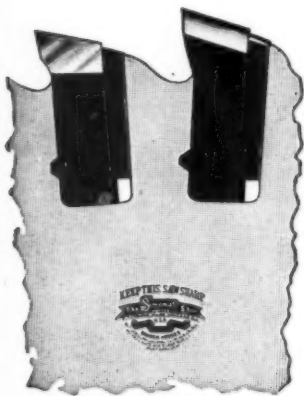
- 1st—One Man Runs Four Machines.
- 2nd—Machines Full Automatic—Eliminates Human Element.
- 3rd—Pointing Operation Free.
- 4th—Saves Handling From Pointer to Threader.

RESULT

Increased Profit for Manufacturer

COMPANY, - Willoughby, Ohio

Lower Metal Cutting Costs—



STYLE 000 Jr.

For cutting material with thin walls such as small I Beams and Angles.

We make teeth in all sizes and spacing to do best cutting.

—You can nearly double the production which can be obtained from a solid tooth saw.

—You waste no more material. The kerf is as narrow as the usual kerf of a solid saw.

—Your saws stay sharp much longer than solid saws. The teeth are full high speed steel.

—You get perfect clearance. All friction on sides of the teeth and on the saw plate is eliminated.

—Teeth easily replaced when worn out. A mechanic in your own shop can do the job.

*Write us about the cutting you do.
We tell you the style of*

SIMONDS

**Inserted Tooth
Metal Cutting**

SAW

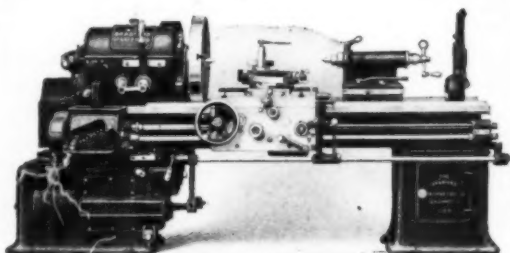
that will do your work best.

Simonds Saw and Steel Company

Boston, Mass.
Chicago, Ill.
Atlanta, Ga.
New Orleans, La.
Seattle, Wash.

New York, N. Y.
Detroit, Mich.
Memphis, Tenn.
Portland, Ore.
Los Angeles, Calif.

San Francisco, Calif.



BRADFORD LATHES

PATENTED

"All Geared"

Single Pulley or Motor Drive with Apron Control

BRADFORD "All Geared" LATHES have tremendous power, yet are practically vibrationless even when pushed to the limit. Through the Silent chain enormous power is delivered to the head as smooth as if the ordinary leather belt drive were used. Tooth and chatter marks are absent—every strain tendency in the head is *downward*, drive is from beneath, tool thrust locks head tighter to bed. Made in sizes from 14 to 48 inches. We guarantee this lathe to be fully satisfactory in every way and capable of turning out

Better Lathe Work and More of It

Write Today for Complete Information

We also make Cone Pulley Metal Working Lathes of Quality in sizes from 14 to 48 inches, and Special Production Machinery.

The BRADFORD MACH

657-671 Evans Street,

Establish

BRADFORD

Unit Type Drill Heads— Also Tapping Heads

PATENTS PENDING

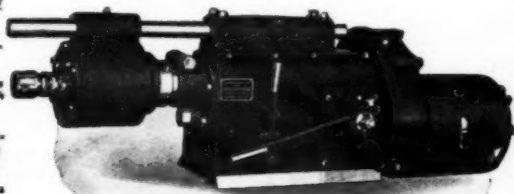
To meet present-day high production requirements of drilling, reaming, hollow milling, countersinking or tapping these Bradford Unit Type Heads were designed for the express purpose of assembling one or more heads into one unit, mounted at *any angle* from *horizontal* to *vertical*.

**Capacity of Drill Heads with 3" or 6" stroke,
1/4" to 1 1/8" in steel.**

**Capacity of Tapping Heads with 3" or 6"
stroke, from 0 to 1" in steel.**

Spindle Speeds from 75 to 2000 R. P. M.

Send for Illustrated Descriptive Folder



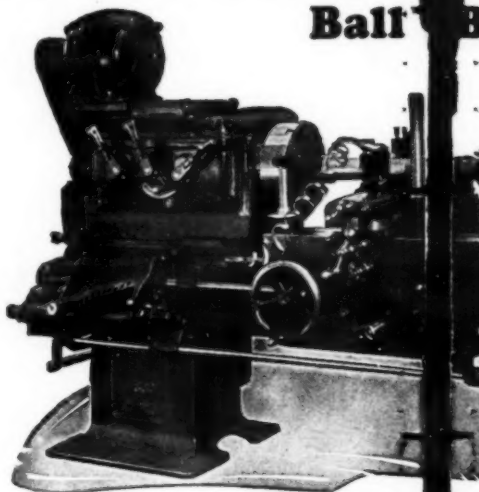
No. 1 Tapping Head with 6 inch stroke

INE TOOL COMPANY

ed 1840

CINCINNATI, OHIO

Balt B

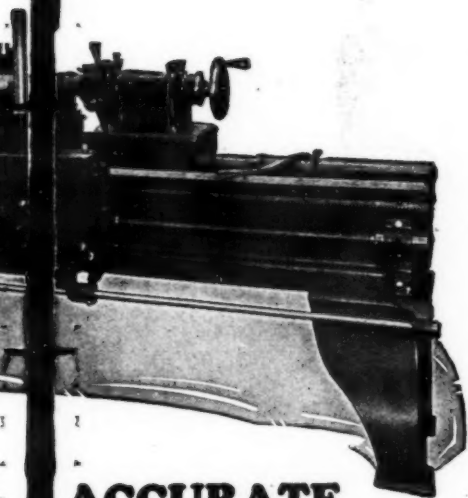


CISCO LATHES

OUR CATALOG IS READY

The Cisco Machine Tool Co.
CINCINNATI

Bearing Spindle



**ACCURATE
POWERFUL
ECONOMICAL**

SEND FOR IT TODAY

**1700 Elmore Street
PHIO, U. S. A.**

Designed for High Speed Work

Ready for the Job



More
Holes
per
Hour!

C-O
14-inch
High-Speed
Sliding
Head
Sensitive
Drill

3,400
to
10,000
R. P. M.

Total height, 41".
Vertical adjustment of head, $7\frac{1}{2}$ ".
Diameter of spindle, $\frac{5}{8}$ ".
Travel of spindle, $3\frac{1}{4}$ ".
Maximum distance of bottom of chuck
to base table, $10\frac{1}{4}$ ".
Size of base table, $9\frac{1}{2}$ " x $12\frac{1}{2}$ ".

Speed of spindle, 3,400-5,600-10,000.
Largest size of drill, $5/16$ ".
Distance from column to center of sp. $7\frac{1}{4}$ ".
Size of sp. pulley, $1\frac{1}{2}$ "- $2\frac{1}{4}$ " x $1\frac{1}{4}$ " face.
Bench space, 15 " x 20 ".
Net weight, 180 pounds.
Crated weight, 220 pounds.

Complete Information gladly furnished

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

The Improved Canedy-Otto No. 29

Ready for the Job



**Completely
Motorized—
Also Furnished
Belt Driven**

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, 1½" endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois
New York Branch **Complete stock** **San Francisco Branch**
407 Broome St. **carried at branches** **955 Folsom St.**

Lewis Seam-Welding Head

PATENTS PENDING

Simply Attach to Upper Horn of your Spot-Welder and then do Seam-Welding.

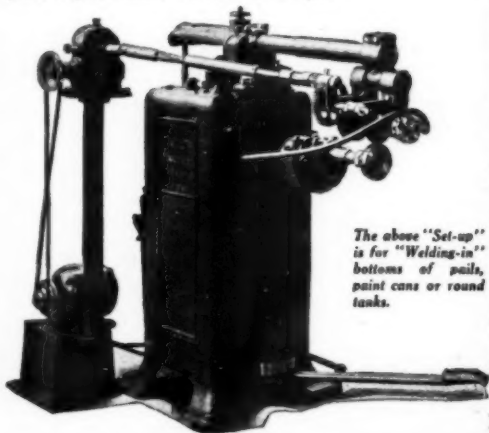
The Lewis Welding Head may be attached to any standard make Spot Welder in a few minutes.

It will "Lap" or "Seam" weld strips or plates any length at 5 to 30 ft. per minute depending upon thickness and quality of stock.

It will "Side Seam" buckets, pails, oil or paint cans, or other cylindrical or square pieces.

It will "weld in" bottoms of buckets, pails, cans, etc.

The welding is done by a continuous flow of current (not intermittent or interrupted). When completed the joint is gas, steam, water and air tight.



The above "Set-up" is for "Welding-in" bottoms of pails, paint cans or round tanks.

Lewis Seam-Welding Head

PATENTS PENDING

Two of these welding heads have been in continuous production for nearly three years making bicycle steel rims—one head being attached to a stock Federal Junior and the other to a standard Taylor Spot-Welder. The rim is rolled from .031 stock and lapped on the tire side. It is then seam welded around the entire $6\frac{1}{2}$ foot circumference in 30 seconds. Think of it! 3 layers of metal welded solid at rate of 13 feet per minute ALL DAY LONG, and yet—the cost of this Welding Head is insignificant when the work it will do is considered.



The above shows cross section of The Dayton Steel Bicycle rim Before and After Seam-Welding

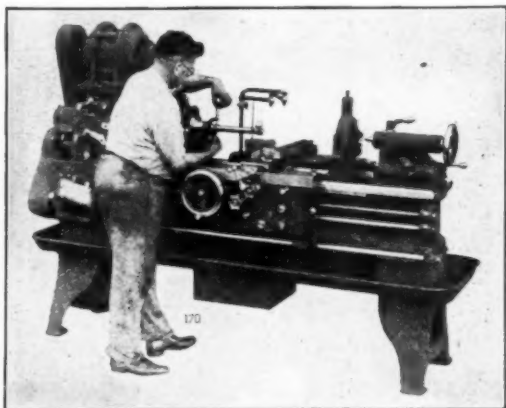
No structural change is necessary to your spot welder—simply clamp the Lewis Welding Head to the upper horn. Remove lower horn and bolt on the proper electrode for either transverse or longitudinal welding. Please note the electrode “drive” is a separate unit and NOT attached to spot welder.

Let us send you our bulletin No. 128 which gives interesting information on seam welding in general and *this Proven Seam Welder in Particular.*

Welding Appliance Co.

2111 West Lake Str., Chicago, Ill., U.S.A.

EVERY CINCINNATI LATHE



is thoroly tested before shipping. A limit variation of .001 is allowed, but none leave our factory that show a greater error in any alignment.

Just how long any lathe will do its work well, depends much on how carefully and accurately the headstock, tailstock, carriage, etc., were fitted, also aligned to the bed.

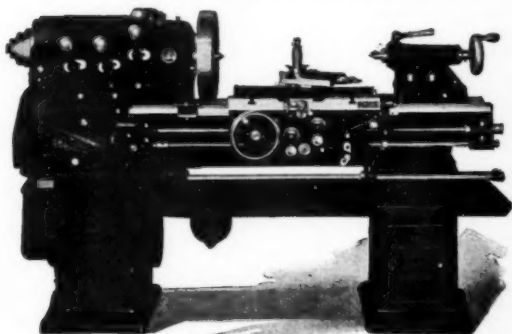
Specify ***Cincinnati Lathes*** and be sure of the quantity also quality work you produce.

*Sizes 16" to 32" either Cone Type or
Geared Head. belt or motor drive.*

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio

The Monarch Ball Bearing Helical Geared Head Lathe

Silent—Smooth—Powerful



Three and one-half teeth of the oil-hardened helical gears are always in mesh.

There is a noiseless, smooth, constant transmission of power, with higher spindle speeds than are possible through any system of spur gearing.

The result is greater production.

Write for complete description of Monarch Helical Geared Head Lathes from 14 to 30 in., with 5 ft. to 30 ft. beds. The folder describes many other modern features, including unusual ease of operation.

The Monarch Machine Tool Co.

Sidney, Ohio, U. S. A.

Unfailing Performance

is assured if you have a CLEVELAND OPENSIDE PLANER in your shop. All levers are reached from one position, saving time and steps.

*Dial Feed; Power Rapid Traverse; Single Turn Rail Clamp;
Automatic Trip to Rail Raising Mechanism; Improved
Head Clamp; Forced Feed Lubrication to Vees.*

26 in.

to

72 in.

20 **The Cleveland Planer Company**

Established 1900

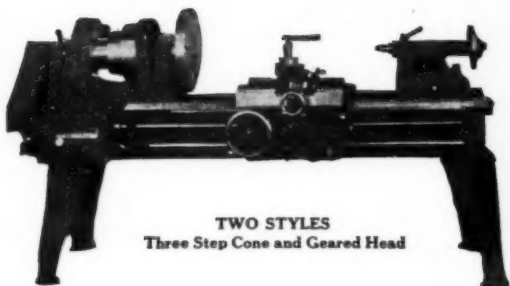
3148 Superior Ave.,
Over 1100 Installations

Cleveland, Ohio

Send
for
Descriptive
Folder



The Open Side Planer with the Column
Base Cast Integral with Its Closed Top Bed.



TWO STYLES
Three Step Cone and Geared Head

16"x6' New Design **\$525.00**
Weight 1900 lbs.

18"x8' New Design **\$585.00**
Weight 2100 lbs.

3-step cone, double back gear, quick change gear, graduated compound rest, steady rest, lead screw and feed rod, tool post, centers, countershaft and wrenches, ready to run.

A lathe in the **INEXPENSIVE** class, for your shop equal to, in all respects, lathes of much higher price, having all their features:

Alignment and Precision
Speed in Production
Ease of Operation
Ability on all Work
Low cost of Upkeep
INEXPENSIVE COST to YOU

Made in 16" and 18" swing from 6' to 18' length of bed. Either 3-step cone belt drive or All Geared 9-Speed Drive Head for 2 H. P. Motor.

*Write us for full information and **PRICES***

The Rahn-Larmon Co.
2943 Spring Grove Ave., **CINCINNATI, OHIO**

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

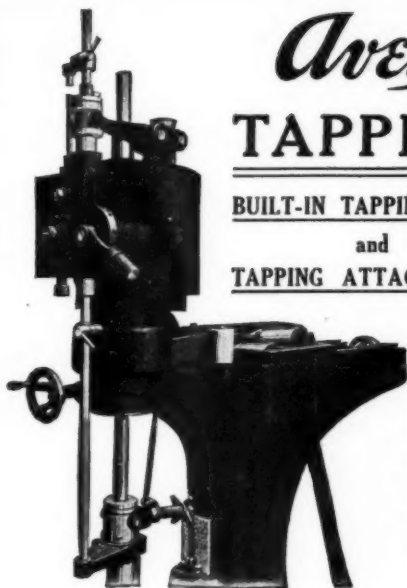
More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT



Avey **TAPPERS**

BUILT-IN TAPPING UNITS
and
TAPPING ATTACHMENTS

Sizes
and Types
For All
Holes
Up To
1½ Inch
In Cast
Iron

AVEY Tappers reach the peak of tapping efficiency. Their speed, smooth positive operation, and capacity for continuous production of perfect tapped holes under severest conditions assure lowest possible cost for each hole tapped.

*Let us send you our Special Bulletins
describing our complete line of Tappers*

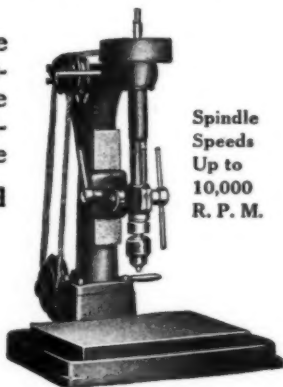
The Avey Drilling Machine Co.
CINCINNATI

Don't Forget—

**Wood, Fibre, Rubber,
Paper, Mica, Bakelite**

as well as the
ordinary met-
als can be
drilled to ad-
vantage on the

**Leland-Gifford
Super-
High-Speed
Ball Bearing
Drilling
Machine**



**Spindle
Speeds
Up to
10,000
R. P. M.**

**Write us about this Drill to speed
up your drilling operations.**

Ask for Bulletin No. 502

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

**BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER**

AGENTS

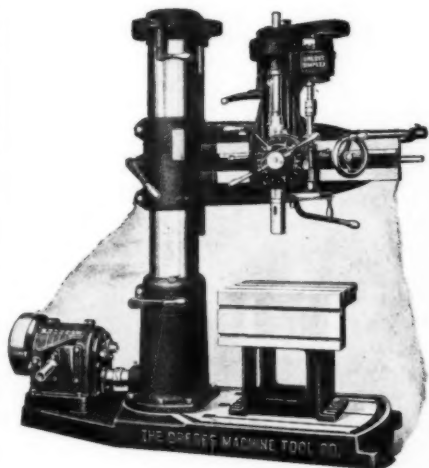
Hendrie & Bolthoff	Denver
F. E. Satterlee Company	Minneapolis
Calcord-Wright Mch. & Supply Co.	St. Louis
Herberts Machinery & Supply Co.	Los Angeles
F. F. Barber Machinery Co.	San Francisco
	Toronto

LELAND - GIFFORD

2½ Ft. - \$1375.

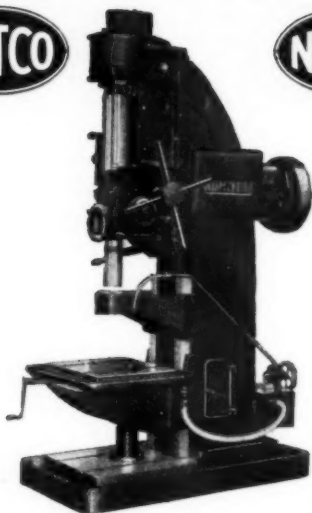
3 Ft. - \$1457.

Dreses Simplex Radials



**We also build a complete line
of Multi Duty Ball Bearing
Radial Drills.**

The Dresses Machine Tool Co.
CINCINNATI, OHIO



No. 3 Hi-Duty Single Spindle

A single spindle Hi-Duty Drilling Machine that is capable of meeting the requirements of modern machine shop practice. Machine shown above has a capacity of one $3\frac{1}{4}$ " drill in steel. NATCO also manufactures similar drills of different capacities which have a wide range of feeds and speeds making them suited for a wide range of work.

NATCO Products

**Standard Adj. Multiple
Fixed Center Multiple
Single Purpose Auto.
Hi-Duty Single Spindle
Horizontal Duplex**

**Drill Heads
Universal Joints
Quick Change Holders
Rotary Tables
Fixtures**

Drillers—Tappers

The National Automatic Tool Co.

Richmond, Indiana

KEEN COMPETITION DEMANDS EFFICIENT MACHINE TOOLS

**Replace the sledge hammer
for drive fit work.**

**It cannot compete with the
Lucas Power Forcing Press**



**The BELT
does the work
and SAVES the
workman's TIME
and ENERGY
for better use.**

We also make the
LUCAS "PRECISION"
**Horizontal Boring, Drilling
and Milling Machine**

The Lucas Machine Tool Co.
521 East 99th Street, Cleveland, Ohio

Something No Workman Can Do

It requires the precision of a special machine



The Grand Rapids Tap Grinder

Grinds taps so that every flute has *exactly* the same angle of taper with just the proper clearance.

This is something no workman can do in grinding by hand.

It saves taps, saves time and insures perfectly tapped holes.

SAVES TAPS. It saves approximately one-half in the cost of taps. It saves the wear of too frequent grinding, because the taps stay sharp twice as long.

SAVES TIME. It saves half the grinding time. It saves tapping time, because the taps cut at higher speeds. It saves assembling time, because nuts, studs, etc., will fit.

INSURES PERFECTLY TAPPED HOLES, because the taps are ground right and with mechanical precision.

*Write for the Tap Grinder book.
It tells how to reduce tapping costs while
producing more satisfactory work.*

Gallmeyer & Livingston Co.

342 Straight Ave., S. W., Grand Rapids, Mich.

Manufacturers of Grand Rapids Drill Grinders, Cutter and Tool Grinders and Tap Grinders. What do you need?



The secret of F-M Motor Success

The trouble points of ordinary motors—bearings and insulation—have been turned into points of strength in F-M Motors. In the ball-bearing type grease lubricant prevents oil-soaked insulation and does away with the time-honored drip can.

Once-a-year greasing ends the profit-dwarfing march of the man with the oil can. Quality construction and liberal rating cuts mechanical troubles to new low minimum.

Modern methods and old time honesty of purpose have built a better motor.

FAIRBANKS, MORSE & CO., CHICAGO

28 branches throughout the United States at your service

FAIRBANKS-MORSE

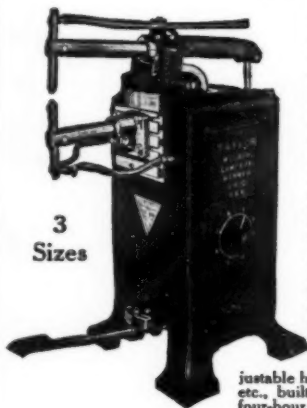
Pioneer Manufacturers of
ball bearing motors



AEA 40.3



Increase Production, Decrease Costs!



**3
Sizes**

Accuracy — precision — dependability — these are the factors that determine the selection of spot welders in the automotive industry. But they are not the only reasons why so many automotive concerns inevitably come to Taylor-Winfield — increased production and reduced operating costs are other decided advantages of Taylor-Winfield Spot Welders.

The latest type illustrated, Type N, is already the leading continuous service spot-welding machine of the industry, with water-cooled transformer, automatic switch, adjustable horns, 8-step regulator, etc., built for steady twenty-four-hour duty!

Write for details on complete Taylor-Winfield line

**THE TAYLOR-WINFIELD CORP.
WARREN, OHIO**

TAYLOR-WINFIELD
**Spot, Butt,
Seam or Portable** **WELDERS**



It Specializes

On Light Shaping and Slotting

7 in.
Shaper
Stroke



3½ in.
Slotter
Stroke

The Rhodes Shaper and Slotter

THIS IS THE DAY of specialization—and greater economy. It doesn't pay to use a big shaper on your dies, tools, models, and other light shaping and slotting, when it can be done with greater facility and economy on a machine that is built especially for that purpose.

THE "RHODES" is a quality tool, built for rapid and accurate production. Quickly changed from shaper to slotter, and vice versa, without resetting the work.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
944 Park Road, :- Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

Taylor & Fenn Belt Driven
No. 12 Spring Press



**UNIFORM BLOW
SPRING PRESSES**

Are made in
three sizes,
with either
single or
double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.



You Need This Booklet!

It shows how PORTER-CABLE Milling Machine Attachments can be used to best advantage. It contains 20 pages of operating positions and installation photographs and a wealth of information on the kinds of work possible with these attachments. It also contains illustrations and descriptions of the new style PORTER-CABLE Tapered End Mills for pattern work.

You need this booklet—and it's yours for the asking. Tell us where to send it.

PORTER-CABLE

MACHINE COMPANY

Salina Street,

Syracuse, N. Y.

GATERMAN

No. 10 Heavy Duty Pneumatic Oscillating Tapping Machine

Also recommended for Multiple Head Tapping

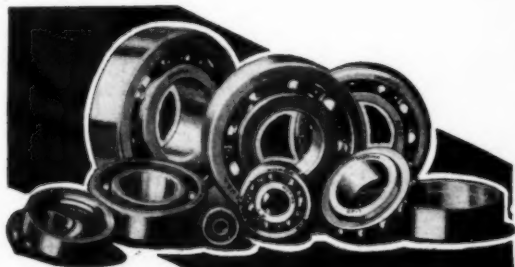
The oscillating feature permits the machine to tap work as a skilled mechanic would—and at a higher rate of speed without danger of stripping threads or breaking taps.

Send samples or blue print. Our engineering department will be pleased to quote guaranteed production estimates and prices.



For lighter
Tapping Equip-
ment write for
literature "LET
AIR DO IT."

W. GATERMAN MFG. CO., Manitowoc, Wis., U.S.A.



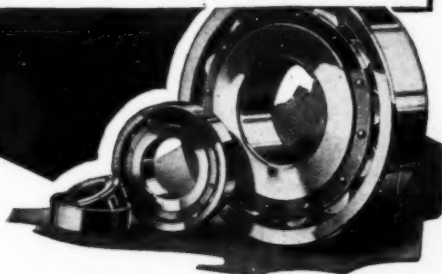
NORMA-HOFFMANN

PRECISION Ball and Roller Bearings,
built to meet the exacting require-
ments of those with whom depend-
able bearing performance is the one
conclusive measure of bearing value.

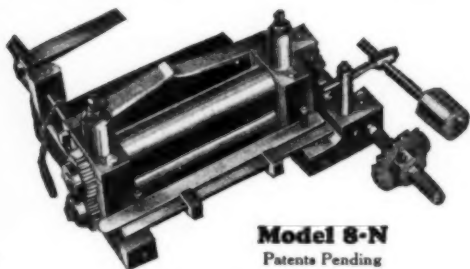
Catalogs 904, 905, and 917

Norma-Hoffmann Bearings Corp'n.
Stamford, Conn., U. S. A.

PRECISION BEARINGS



Automatic Reversible
ROLL FEED
For Any Punch Press



Model 8-N

Patents Pending

A universal, flexible feed, for automatically feeding Metal, Paper, Leather, Brake Lining, or any stock from coils—from wire to 8" widths and lengths of 0" to 36" at each stroke of the press at rated catalog speed or faster.

This feed mounts on either right or left side of the Bolster Plate, either as a Push or Pull feed. May also be mounted in tandem, one on the right and one on the left as a Push-Pull feed for paper or light stock.

The drive is by chain from a sprocket on the crank shaft, using any sprocket ratio desired.

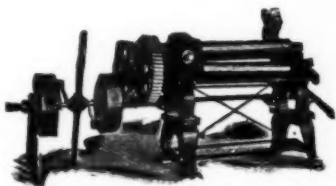
PRICE \$195.00 F. O. B. Chicago

Wittek Manufacturing Co.

DEPT. 3

2532 So. Kedzie Ave.,

Chicago, Ill.



BELOIT

INITIAL TYPE

Sheet & Plate Bending Rolls

The Beloit Initial Type Rolls are built in a large number of sizes and capacities, and for a great variety of work.

The modern design of the Beloit Rolls of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

The quick-acting cam lever device raises the top roll for the removal of completed cylinders.

Individual and simultaneous adjustment of both ends of the forming roll can be furnished, and the machine can be arranged for third roll drive, when necessary.

Those in the market for Bending Rolls cannot afford to fail to give us their specifications, and to get our quotations.

We solicit your inquiries for Bending Rolls, either Initial Type as shown above, or the Pyramid Type machine, as well as for Punching and Shearing Machinery, both hand and power.

Hendley & Whittemore Co.
100 S. State St.,

BELOIT, WIS.

For Driving Short Screws At Lowest Cost



The
Reynolds
No. 1
Special

The Only Automatic Magazine-Fed Machine

That drives short
screws and those
with short bodies
and large heads

Just keep the hopper
filled—no handling of
screws beyond that
—a boy or girl can
operate it.

For a dozen years our Automatic MAGAZINE-FED Machines have been driving nearly every kind of screws for up-to-date concerns everywhere, at a saving of 65% to 85%.

Our No. 1 Special, shown in the picture, which has been in use in many plants for over three years, completes our line of MAGAZINE-FED Machines, by handling screws with short bodies and large heads. It magazines and drives screws from No. 4 to No. 10, up to $\frac{1}{2}$ " long, to the center of a 14" circle.

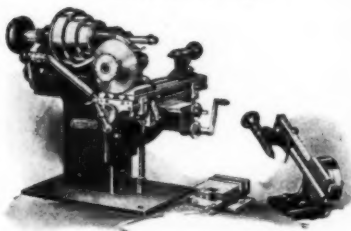
Send us samples of your assemblies containing screws and we will recommend the proper equipment to meet your requirements

The Reynolds Machine Company
Dept. H. H., Massillon, Ohio

HARDINGE

Milling Economy!

With New Conveniences and a Wide
Range of Feeds, This Miller Affords
You Real Savings



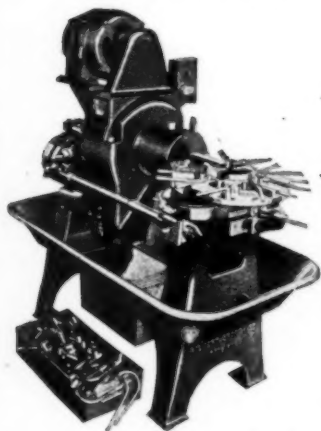
Cataract Bench Milling Machine

MANY YEARS of practical experience taught the designers and builders of this Bench Miller just what ought to go into a machine of this sort. You will find it unusually useful, doing its work with precision accuracy, and having available a wide range of feeds for practically all jobs that come within its range.

*Complete data and the interesting
price gladly sent you on request*

Hardinge Brothers Inc.
4149 Ravenswood Ave.
Chicago, Ill.

Adjustable to almost Every Job of Threading



The Rickert Shafer Automatic Single Purpose Threading Machine

This machine can be adapted to almost every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing etc., can be done simultaneously with the threading and with but one chucking. Roller bearings are used for the spindle sleeve; bronze for other vital bearings; has individual motor drive; built-in pump for circulating coolant, with generous sized reservoir for holding same.

The R-S Machine is practically the only automatic threader which will maintain the accuracy demanded by automobile manufacturers, and is backed by a company whose personnel comprises men who have specialized on thread cutting only for over 35 years. Experience has taught them to produce threading equipment which will give REAL SERVICE.

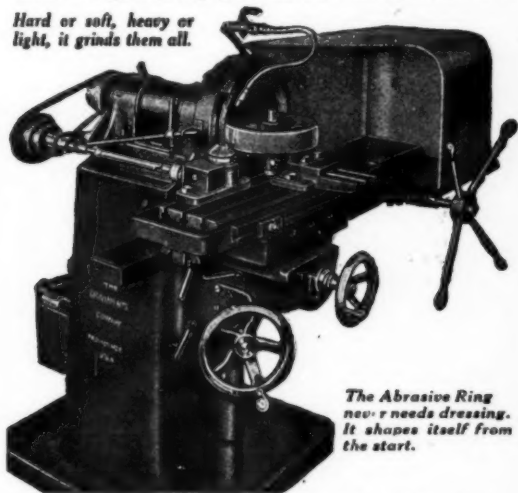
Detailed Information Gladly Furnished. Write Today.

RICKERT-SHAFER CO., Erie, Penna.

GRAHAM PULLEY GRINDERS

Finish small Pulleys, Crowned or Straight, from the rough.
CUTS THE TIME IN HALF OVER TURNING.
Saves enough Iron to pay for the labor and Abrasive wear.

*Hard or soft, heavy or
light, it grinds them all.*



*The Abrasive Ring
never needs dressing.
It shapes itself from
the start.*

*These Machines are for finishing the Belt Surface
of Pulleys up to as large as one man can handle.*

The Pulley is chucked same as for turning. It is dropped on
and picked off the vertical arbor. It is supported and rotated
at the rim by a cone-shaped patented Driving Burr.

Remove the Pulley Fixtures and Grind Flat Work.

Send for Circulars

The Graham Mfg. Co.
73 Willard Ave., **PROVIDENCE, R. I.**

Great Britain—Richard Lloyd & Co., Ltd., Birmingham
France, Italy, Switzerland, Spain and Holland—Fenwick Freres & Co.



The Quick
Action of
the Favorite
Wrench is
Astonishing



Built
strong
to
stand
rough
usage

The lost motion of the old-fashioned openend wrenches is done away with in the

FAVORITE REVERSIBLE RATCHET WRENCH

because its socket form of head encompasses nut on all sides, no slipping is possible.

Wrench is not removed at every quarter-turn. The FAVORITE cuts the cost of nut turning.

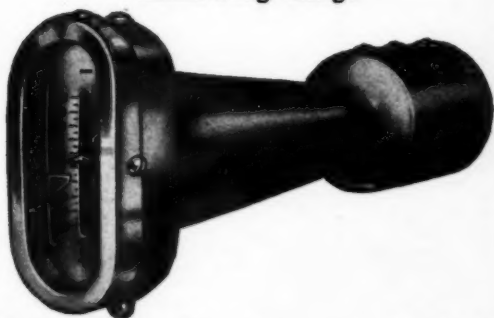
Greene, Tweed & Co.

Sole Manufacturers

109 Duane St.,

New York

The Whole Hole Story At A Glance with
The Cylindermeter
The New Super Production Indicator
Limit Plug Gauge



Size—Taper—Roundness—to $\frac{1}{4}$ -1000" by Simply Plugging In and Reading

FASTER—HANDIER—MORE FLEXIBLE—

Than any other form of internal measuring device.
Built to withstand the wear and tear of intensive production.

All Sizes From 1" Up

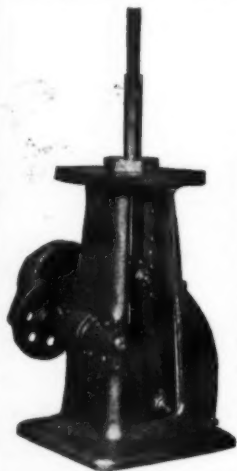
**Self Aligning
Very Simple
Very Light**

**Very Strong
Very Fast
Very Accurate**

Production Gauge Co.
2019 Fletcher St., :: CHICAGO

Our Line Covers All Your Keyseating Needs

And Every Catlin Cuts Keyseating Costs



*Supreme
in Speed
Capacity
Simplicity*

CATLINS are used and giving solid satisfaction both at home and abroad, in shops and plants of every size and description.

This universal popularity can be ascribed to three characteristics of the Catlins—they

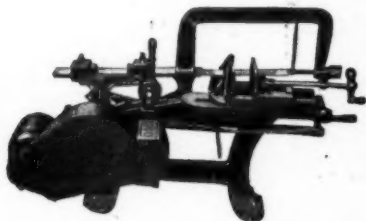
- (1) do better work
- (2) in less time and
- (3) at less cost.

In construction they are a happy combination of simplicity and sturdiness. Catlins have less than half the number of parts of other keyseaters, and those parts are thoroly substantial without being clumsy. The picture shows the Catlin No. 1, belt driven, with three-step cone pulley. We also build them for motor drive.

Glad to mail you the folder, shop records, and partial list of big plants where Catlins have made good

Chattanooga Machinery Company
2401 Bennett Ave., Chattanooga, Tenn.

A Complete Motor Driven Hack Saw at a very attractive price. It's a Strong, Durable, Dependable Saw, and can be furnished either with motor for power circuit for stationary use, or with motor for lighting circuit so can run from any light socket in your shop. Write us. Let us know the current of your power circuit, or lighting circuit. Get the full details from us of this Complete Motor Driven Saw.



Marvel Draw-Cut Hack Saw No. 2

Adjustable Stroke

CAPACITY { 6"x6" on long stroke
8"x8" on short stroke

With Swivel Vise

Motor is connected with driving shaft by silent chain, sprockets, and intermediate cut gears enclosed in cast iron housing and guard and run in oil. Also furnished Belt Driven.

ASK ABOUT MARVEL
High-Speed-Edge Hack Saw Blades

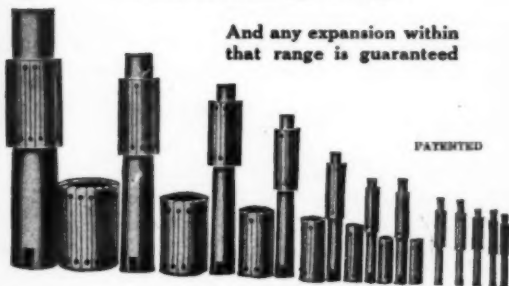
ARMSTRONG-BLUM MFG. CO.

341 N. Francisco Ave.,

CHICAGO, ILL.

JUST 1 SET OF 12 Champion Expanding Mandrels

Will fill by thousandths any inside
diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



And any expansion within
that range is guaranteed

So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

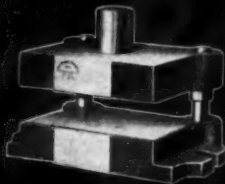
Our Catalog also describes

Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

Advantages of **DANLY** DIE SETS

DANLY
STANDARD



1 Convenient . . . from stock, standardized, interchangeable die sets.

2 Save 20-50% die makers' time for mounting dies and set-up on press because of leader pins and bushings; all working surfaces accurately machined.

3 Shearing of dies absolutely eliminated . . . enormous increase in "pieces per grind" . . . hardened, ground and lapped leader pins and bushings maintain precision alignment.

4 Immediate delivery from stock. Order from catalogue.

5 Save 20-50% in first cost; minimize investment.

Send for new 50-page catalogue, 100 illustrations and blue prints

DANLY MACHINE SPECIALTIES, INC.

2104-2130 SOUTH 52ND AVENUE, CHICAGO.

DETROIT, MICH.
1537 TEMPLE AVE.

LONG ISLAND CITY, N. Y.
36-12 34TH STREET

Die Sets — Leader Pins — Bushings — Dowel Pins — Stripper Bolts
Pressure Pad, Stripper Plate and Knock-out Springs — Socket Head Cap and
Set Screws — Clamps — Pry Bars — Auto-Gages

Perfect Alignment Assured with the U. S. Tool Steel Base Sub-Press

YOU can put your costly dies through the toughest kind of service and be sure of perfect work without injury to the dies if they are mounted on U. S. Tool *Steel* Sub Presses.

RIGID inspection insures exact *initial* alignment. The surplus strength of U. S. Tool *Steel* Sub Presses prevents any distortion and maintains exact alignment of the plunger and steel base under the heaviest production strains.

9 Features—Big Value

1. Surplus strength prevents breaking.
2. Ruggedness prevents distortion.
3. Exact alignment—always.
4. Self-lubricating.
5. Extra wide base.
6. Larger die space.
7. Two styles cover all requirements.
8. Price no higher than ordinary sub presses.
9. Quick shipment from large stock.

Write for details of U. S. Tool Steel Sub Presses, with complete list of sizes, styles and prices



**U. S. Tool
Company**

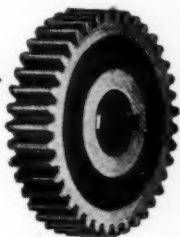
Inc.

Ampere, N. J.

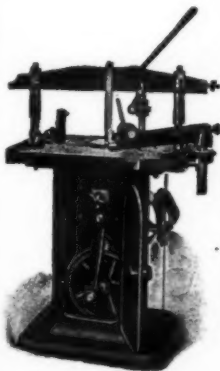
New—Rugged—Strong!

When You Use A "DAVIS"

*such
keyways
as this*



**Are cut with accuracy
and at a low cost.**



No. 1 cuts from $\frac{1}{16}$ to 1-inch

For cutting keyways in pulleys, gear blanks, bell cranks, crank handles, etc., and for slotting and grooving, nothing surpasses the "Davis." It is simply constructed, difficult to get out of order, and within its dimensions, produces accurate work at a low cost. Its versatility and accuracy make it equally effective in handling quantity output of standard parts mixed runs or every-day job work.

*Two sizes. Write for folder, with table of cutting time
It will tell you the whole story*

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.



They are not a new tool. If you order a set or a single mandrel you will know you are getting a practical and efficient article that has coped with all sorts of jobs where mandrels have been required in all kinds and classes of machine shops, during the past 30 years.

Write us for further information.

W. H. Nicholson & Co., 117 Oregon St., Wilkes-Barre, Pa.

SHELDON MILLING MACHINE VISES



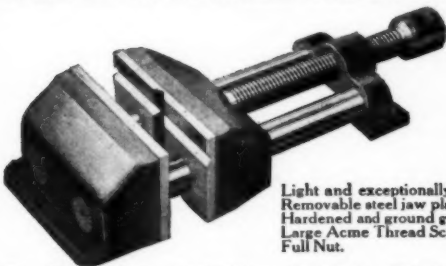
**Plain or
Swivel Base**

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/2"	1 3/8"	2 1/2"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 5/8"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



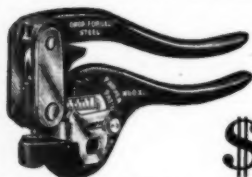
Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/4"	1 1/4"	4"	15 lbs.	\$12.00
D-6	6 1/4"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 3/4"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3251 Cottage Grove Ave., CHICAGO, ILLINOIS

The Greatest Punch Value Ever Offered

The No. O. X. Metal Punch



REDUCED
TO

\$5⁹⁰ Complete
with
3 Punches and 3 Dies

Pat. Dec. 9, 1919, No. 1,324,621
Pat. June 6, 1922, No. 1,418,474

This announcement will be enthusiastically greeted by thousands of metal workers. Just think, the famous No. O.X. Metal Punch, conceded by more than 35,000 metal workers to be the most powerful and practical Punch on the market for both shop and field use—at this low price, \$5.90 complete with one each $\frac{1}{8}$ ", $\frac{3}{16}$ " and $\frac{1}{4}$ " punch and die.

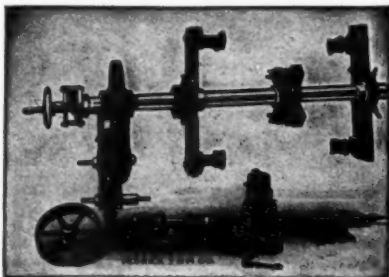
A few of the many features of the No. O.X. Punch are—measures 8" overall and weighs but 2 $\frac{5}{8}$ lbs.—punches $\frac{1}{4}$ " hole in 14 gauge steel or equivalent—front pointer and gauge combination showing operator where to punch holes—punches and dies easily and quickly changed.

Punches and dies are made in six stock sizes: $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ ", $\frac{7}{32}$ ", $\frac{1}{4}$ " and $\frac{17}{64}$ ". Intermediate sizes of round punches and dies can be made to order.

Order from your Jobber

HYRO MANUFACTURING CO.
200 VARICK ST., NEW YORK

Pedrick Portable Tools



Portable Cylinder Boring Bars

For re boring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

Write for the Catalog today

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Reduce Finishing Costs on Your Forgings and Castings



Genesee Adjustable Hollow Mills

Require but seven sizes to cover the entire range from $\frac{1}{8}$ " to 2"—and will machine all sizes within their capacity to 1000ths of an inch. Compare this with the hundreds of solid tools necessary to do the same work and you will readily see the many advantages Genesee Adjustable Hollow Mills have to offer you.

Accurate—Productive—Economical

Accurate because they cannot change in size or clog with chips. Speedy, as they cut up to 15" a minute in steel. Stronger, outlasting from five to seven solid tools. Blades are replaceable at a small cost. Made in six different styles, from the heavy roughing Style "B" to the accurate finishing Style "F." Also made in Style "N" for all Brown & Sharpe automatics, and in special styles and sizes to your order.

Write for complete, detailed information

Genesee Manufacturing Co., Inc.

141 North Water Street, Rochester, N. Y.

Manufacturers of Genesee Rapid Production Tools

Est. 1908



A RAPID FIRE FILER

*Sharp Saws
At 5¢ Each*

That is all it
costs when
RESHARPENED
on this machine

**SAVES TIME
REDUCES WORK
ADDS EFFICIENCY**

That's Why

Amer. Brass have.....	19
Continental Fibre.....	28
Formica Insulation.....	10
and over 100 Newspapers use them	

The Model J

at a speed of
70 TEETH A MINUTE
sharpens all medium,
soft or spring tempered
CIRCULAR SAWS
up to 18" in diameter
Teeth from as small as 32 to
1" up to ½" spacing.

Write for Catalog

THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard Tempered Band Saws, Milling, Slitting and Screw Slotting Saws and all Woodworking Saws.

Manufacturers of the largest line of Saw Filers made in U. S. A.

108 Hamilton Ave.,

CLEVELAND, OHIO

No. 10 Ball Bearing Punch



Weight $8\frac{1}{2}$ lbs. Capacity $\frac{3}{8}$ -inch
hole through $\frac{1}{4}$ -inch iron.

**Ball Bearing and Roller Bearing
Punches in many styles and sizes**

Ball Bearing Punch No. 40



Made of 45, 50 point O. H. Steel, drop forged. Very rigid —no springing in operation. Now provided with movable handle, to meet user's needs.

Capacity, $\frac{5}{8}$ " thru $\frac{3}{4}$ " iron
Depth of throat, $3\frac{1}{2}$ "
Height of throat, 2"
Weight complete, 87 lbs.

The elimination of friction insures more work at less cost in all Whitney Punches.

*Write for Catalog and Price
List on Entire Line*

WHITNEY METAL TOOL CO.

95 Forbes Street,

Rockford, Illinois

PEERLESS SURFACING MACHINES

for
**Grinding and Finishing
Flat Work**

**4' Bench
Model**



**Larger Machines in Both
Horizontal and Vertical Styles**

SEND FOR FOLDER

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

200,000 Holes from a Broken Drill—

This record was actually made with the broken end of a drill salvaged from a scrap pile and inserted in a

Save—Drill Chuck

This Chuck will hold securely either tang or shank end of any broken drill that is long enough for your work. Keeps the scrap pile down to the minimum.

Saves New Drills

While the Save-Drill Chuck enables you to use up broken drills completely, its main purpose is to keep new drills from breaking. It does this because the hollow shank of Chuck protects the drill. For instance, if you are drilling $\frac{1}{2}$ " deep, only $\frac{5}{8}$ " of the drill need protrude from the chuck—if it does break you lose only that amount, the drill is resharpened and you proceed with your work.

Made In All Sizes

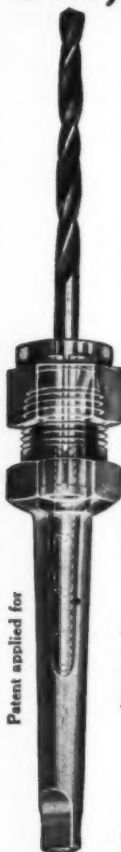
Save-Drill Chucks are made in all sizes for use on Turret Lathes, Screw Machines and Milling Machines. They save time now lost in centering and setting up.

*Write Today for Full Information—And
Our 30-Day FREE TRIAL OFFER*

Sandusky Nut Company

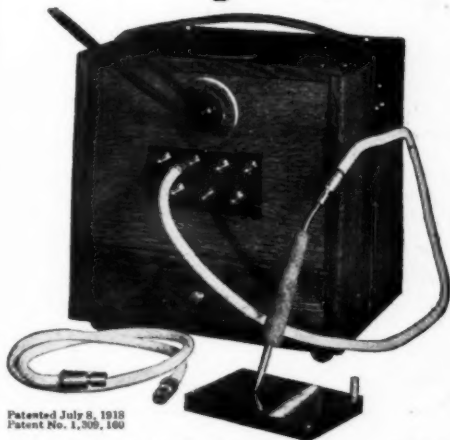
122 Lawrence Street,

Sandusky, Ohio



Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,309,160

Cut Tool Marking Time 80%

For marking iron, steel or steelite, nothing can equal the **ETCHOGRAPH**—the original electric marker. Six stages of heat allow six variations in the size of marking, an advantage no other machine can offer. No acids—no fuss—simple to operate—just connect to light socket and write as with a pencil.

Write for descriptive folder, stating power available.

William Brewster Company
50 Church St., New York



MACHINE TOOL AND GENERAL
PURPOSE PUMP



VOLUME PUMPS



MOTOR DRIVEN UNITS
 $\frac{1}{2}$ to 5 H. P. 5 to 75 G. P. M.

60 **FULFLO delivers** coolant in volumes which promote efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective,

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

Gusher Pumps



Model T-L-O is shown above. Equipped with $\frac{3}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

Eliminate
Packing Nuts
Foot Valves
Relief Valves
Priming
Friction

Through the elimination of the above items the GUSHER PUMPS stand the constant wear and tear of time. The deteriorating effect of friction is done away with through the use of ball bearings which are absolutely immune from the action of the lubricant through perfect hydrostatic balance. The menacing effects of grit, dirt and small chips are absent—they pass through without injuring the machine in the least.

The performance of GUSHER PUMPS is the best evidence of their superiority and perfection.

GUSHER PUMPS are built to outlive the machine they serve. They are made in many styles and sizes, of all desirable capacities, with individual motor or belt drive. Can be furnished, if desired, to set outside reservoir and connect by piping.

Send for Catalog showing the entire GUSHER Line

The Ruthman Machinery Co.
528 East Front Street, Cincinnati, Ohio

Abolish Expensive Hand Finishing
with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

WALLS SALES CORP., 96 Warren Street
NEW YORK

GRINDERS



**All sizes
and types**

**Belt and Electric
Bench and Floor
Ball and Roller
Bearing**

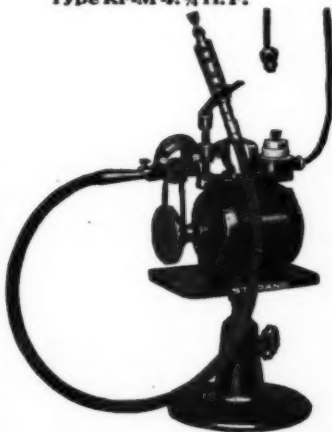
*Send for
Catalog No. H*

Hill-Curtis Co. 1430 No. Pitcher Street,
KALAMAZOO, MICH.



New Type Machine *For* Rotary Filing Grinding and Polishing

Type RF-M 4. $\frac{1}{4}$ H. P.



For
Die Makers
And
All Kinds of
Metal Finishing
Of
Various Shapes
and Sizes
A Machine—
For
Many Purposes

Attach to the
Lighting Circuit

Attachments



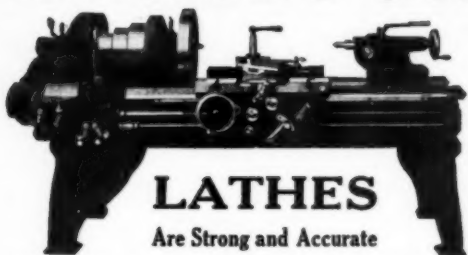
EQUIPMENT

- Ball Bearing Hand Piece.
- 8 Assorted Rotary Files.
- 9 Assorted Grinding Wheels.
- 1 Rubber Polishing Drum.

Machine Complete as Illustrated

N. A. STRAND & CO.
Manufacturers
5001 No. Lincoln Street
CHICAGO

HAMILTON



LATHES

Are Strong and Accurate

Modern Heavy Duty Lathes 14-16-18-20 and 24"
Single and double back geared, cone driven.

Write us regarding your needs

The Hamilton Tool Co., Hamilton, Ohio

"Lehmann Lathes"



TWO STYLES

Three Step Cone and Geared Head

5 SIZES

16/18 $\frac{1}{2}$, 18/20 $\frac{1}{2}$, 20/22, 22/24 $\frac{1}{2}$, 24/27 $\frac{1}{2}$ "

Accurate—Powerful Tools Embodying

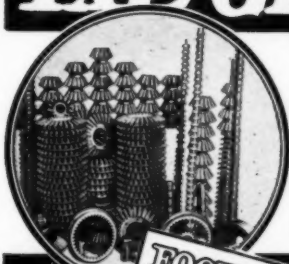
the most modern ideas in design and construction
Their performance is their best endorsement

*Ask any user
Catalog on request*

LEHMANN MACHINE CO.,

St. Louis, U. S. A.

LXL GEARS



***All Sizes
and Types
for Every
Requirement***

send for
**660 Page Catalog
"Gear Problems"**

**over
60,000
different patterns**

**FOOTE BROS.
GEAR & MACHINE CO.
229 N. Curtis St., Chicago**

your "special"
Problem
may be a
Standard
one with
us



ALL TYPES:

**Spurs, Internals, Bevels,
Mitres, Helicals, Spirals,
Worms, Worm Gears,
Sprockets, Ratchets.**

ANY MATERIAL:

**Steel, Cast Iron,
Brass, Bronze,
Aluminum, Fibre,
Bakelite, Rawhide.**

Made in Small and Medium Sizes, all of One Quality—the very best. We also carry a full line of Stock Gears for immediate delivery. **Write us.**

**MASSACHUSETTS GEAR & TOOL CO.
36 Nashua St., Woburn, Mass.**

GEARS

All Kinds—Small



The most accurate made and prices reasonable. We carry a complete line of gears in stock for immediate shipment. Can also quote on special gears of all kinds. Send us your inquiries.

Write for Catalogue No. 70

CHICAGO STOCK GEAR WORKS
105 South Jefferson Street, Chicago, Ill.



Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Profilers.

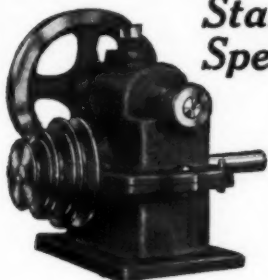
Cutter Grinders



*Send
for
Bulletins*

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.

STANDARDIZATION PAYS



Type BU-2

Standardized Speed Reducers

For immediate delivery

Send for booklet "*Industrial Speed Reduction*" giving complete specifications and prices on complete series of Boston Speed Reducers.

Boston Gear Works Sales Co.

Norfolk Downs, Mass.

Boston, New York, Philadelphia,
Cleveland, Chicago

Service Stations in Principal Cities

BOSTON GEARS

Top Production at Lowest Costs "HOPKINS" 2 & 3 Jaw Chucks



Continuous production cuts costs and pyramids profits. "HOPKINS" 2 & 3 Jaw Chucks effect these because of their original design, in-built quality materials and the dust-proof feature.

"HOPKINS" Chucks give greater gripping power, lessen vibration and increase centering precision.

Your order will have prompt attention as "HOPKINS" Chucks are carried in stock in these diameters: 8", 10", 12", 14".

Write for Bulletin—No. 4-28

TOMKINS-JOHNSON CO.

617 N. Mechanic St.,

Jackson, Mich.

The DRUMMOND BENCH LATHE



7" Swing
9" in Gap
1' 4" or 2' 4"
between Centers

PRICE
\$185.00
Extra Ft. Bed
\$20.00

A Lathe in every way the most complete in its class. Cantilever Bed for accuracy—Massive Headstock with Phosphor Bronze Cone Bearings and Ball Thrust Take-up—T-slotted Boring and Milling Table—New Toolholder with Height Adjustment.

So the list goes on—but see all details in Catalog 8.

THE GEROLD COMPANY

120 Liberty Street

New York, N. Y.

NOTICE

Users of

Advance Engine Lathes

and

I.H. Johnson Engine Lathes

We have the patterns and drawings for above Lathes, and are prepared to supply repair parts, attachments, etc., for same.

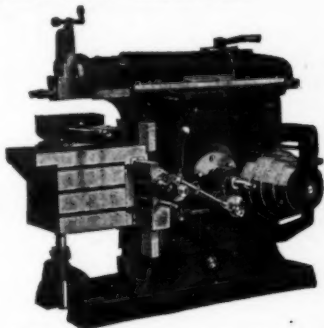
The Carroll & Jamieson Machine Tool Co.
BATAVIA, OHIO

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through Speed
Box.

Belt Shifter
Regular Equip-
ment All Cone
Driven Shapers.

32" Back Gear-
ed Crank, Sin-
gle Pulley
Drive.

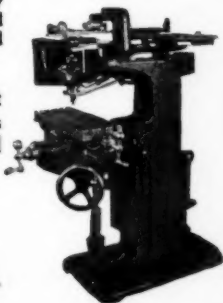


The Smith & Mills Co., Cincinnati, O., U.S.A.

Universal Die Sinking and Engraving Machines

designed to save time and money
on the production of light and
heavy dies, molds, stamps and
general engraved work—

in brass, steel or cast iron. Built
by a firm having over thirty years
of experience, having equipped
many prominent work-shops.



Catalog sent on request

George Gorton Machine Co.
Racine, Wisconsin

E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost.

Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary thread.



Eliminates stopping or reversing the lathe.

The many repeat orders received prove it is satisfactory after trial.

Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

JAMES M. COLVEN, 20 Wolfe Street, Yonkers, N. Y.



SMILLIE

Turret Lathe Drill Chucks

THE compensating feature of this Chuck permits the setting of tools either way from its own center when necessary to line up with the live spindle, making the tool setter independent of errors in alignment of Turret slide.

Cutter Reamers or Taps can be set in this Chuck to cut their exact size, and will not slip because you get the power directly behind the jaws. Standard for over fifteen years—glad to send you list of satisfied users.

Dimensions and Prices:

No. 1 takes Drills No. 55 to $\frac{3}{8}$ "	\$ 7.00
No. 2 takes Drills No. 42 to $\frac{1}{2}$ "	8.50
No. 3 takes Drills $\frac{1}{4}$ " to $\frac{3}{4}$ "	9.50
No. 4 takes Drills $\frac{1}{2}$ " to 1"	17.00

Shipped for FREE TRIAL if You Wish

C. M. SMILLIE & CO.

520 E. Larned St.,

DETROIT, MICH.

"PROCUNIER"



Tools will help you too, in cutting production costs and at the same time give you

**GREATER ACCURACY
LESS BREAKAGE and
BIGGER PROFITS**

The Procunier Safety Friction Device is very easily adjusted. With it blind holes can be tapped just as easily as through holes, and without danger of breakage.

*Catalogue 102-B gives complete details of
PROCUNIER Tapping Devices, Quick
Change Chucks and Stud Setting Tools*

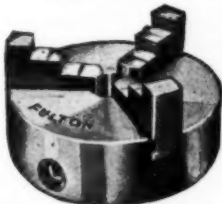
Procunier Safety Chuck Co.

18 So. Clinton St.,

CHICAGO, ILL.

**For ECONOMY and EFFICIENCY
DEMAND**

**Fulton
Steel
Body**



**Universal
Scroll
Chucks**

At the Price of a Cast Iron Chuck

A one-piece body of solid cast steel. Impossible to break or split. Unconditionally guaranteed.

Send us your trial order without obligation on your part.

All Sizes Always in Stock

UNITED HARDWARE & TOOL CORP., 50-52 Howard Street,
NEW YORK

**USE the CHICAGO No. 2
POWER PIPE THREADING MACHINE**



For
**Production
and Precision
Threading**

PORTABLE

Capacity:
 $\frac{1}{4}$ " to 2" Pipe
 $\frac{1}{2}$ " to $1\frac{1}{2}$ " Bolt

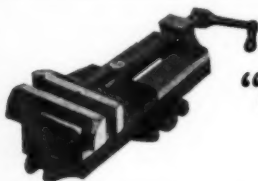
Featuring:

1. Quick Die Change
2. Automatic Die Head
3. Three Speeds
4. Perfected Oil Control

Send for Catalog

**Chicago Pipethread
Machine Co.**

Office and Factory: 1623 Racine St., Racine, Wis.



**The
"BB" Machine
Vise**

For Use on Miller, Shaper, Planer or Drill

Repeat orders are showing that this Vise has proved its worth a hundred times over.

No well equipped shop is complete without this modern vise. Opens 6 inches, weighs 37 pounds.

Price Only \$18.00

A. R. Marsh Machinery Company
4900 West 73rd Street, Cleveland, Ohio



**"Wear Ever"
Adjustable
Spacing Collar
For Milling Machine
Arbors**

Hardened Ground
SAVE SET-UP TIME

**"A GOOD COMBINATION"
HARDENED & GROUND SOLID SPACING COLLARS**

Ends are
ground parallel,
lengths
are accurate



Made of
Alloy Steel
hardened

All thicknesses and standard arbors carried in stock for immediate delivery.

SCULLY-JONES & CO., Tool Division
1901 S. Rockwell St., Chicago, Ill.

**"SAUNDERS"
Pipe Threading and
Cutting Machines**

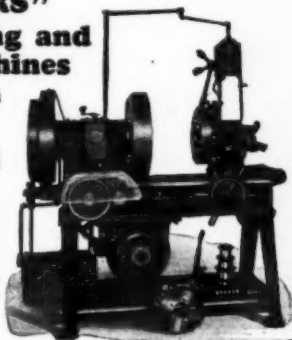
Motor Driven

**For Plumbing,
Steamheating and
Industrial Plants**

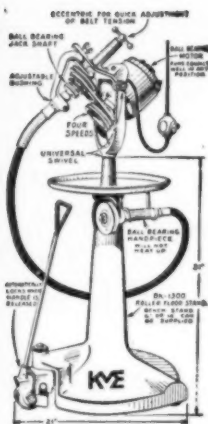
No. 4-B range $\frac{1}{2}$ to 4" Incl.
No. 5-D range 1 to 6" Incl.

Full line to meet all re-
quirements, $\frac{1}{4}$ to 18" Incl.

Send for catalog



D. Saunders' Sons, Inc.
31 Atherton Street, Yonkers, N. Y.



Keller "BK"

Flexible Shaft Grinder

"The Machine of a Hundred Uses"

$\frac{1}{4}$ — $\frac{1}{3}$ — $\frac{1}{2}$ — H. P.
SPEEDS UP TO 10,500

Non-Heating Shafts
Ball Bearing Handpieces

FILING— GRINDING—
POLISHING—DRILLING—
ETC.

Tell us your problems

Keller Mech. Engineering Corp.,
58A Washington St., Brooklyn, N. Y.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute level in ten seconds.
No revolving parts.

The edges or "knives" upon which the work is tested are ground true, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

Complete
Sets

Mall
TRADE MARK

Replacement
Units

FLEXIBLE SHAFTS

Powerful, yet light enough to carry about



Lacquer Polishing



Metal Finishing

Manufacturers of over 100 different flexible shaft machines and a complete line of tools and accessories.

Write for complete catalog

MALL TOOL CO., 7730 So. Chicago Ave., Chicago, Ill.

STANDARD

Portable Electric Drills, Grinding,
Polishing and Buffing Machines



Made in 3 and 5 H. P.
G. E. 40° Motor. S.K.
F. Ball Bearings.



Standard 1/4-in. and 3/8-in. Heavy Duty
Drills. Drills made in various sizes up
to 1 1/4-in. capacity. General Electric
Universal Motors used.

Established 1912

Write for Late Catalog

THE STANDARD ELECTRICAL TOOL CO.

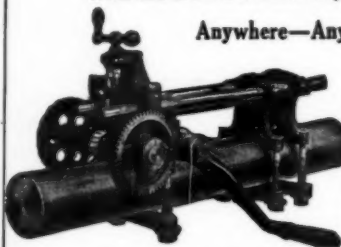
1938 W. 8th St.,

Cincinnati, Ohio

Keyseat Shafting

With the Burr Portable Keyseater

Anywhere—Any Position



Cuts perfect keyways up to 12" long, in shafts up to 5" in diameter. Saves expense, of dismantling shafting and tearing down equipment. Made in seven sizes, hand or power driven. Over 10,000 in use.

Order One Today and Save Money!

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

NATURAL

KEYSEATS

are milled with this tool. The tool slides thru the hole just like the shaft with its key fitted. Isn't it natural?

CATALOG O

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



**GITS
BROS.**

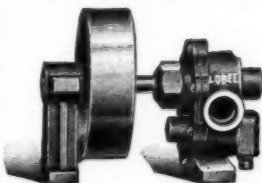
**Better
Oilers**

287 Styles & Sizes



GITS BROS MFG. CO.
1940 S. Millburn Chicago.

Lobee Pumps



For
**Circulating
Lubricants, Etc.
Easy To Attach.**

**Made For $\frac{3}{8}$ ", $\frac{1}{2}$ ", 1", 1 $\frac{1}{4}$ "
Standard Pipe Connections**

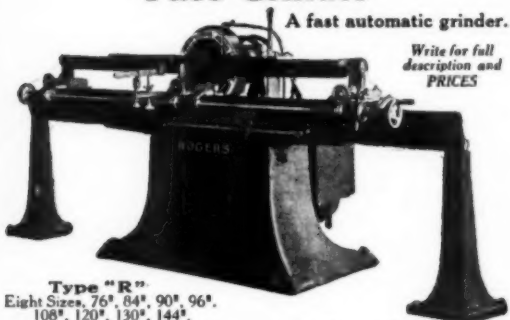
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Lobee Pump & Machinery Co.

128 Dearborn St.,

BUFFALO, N. Y.

New Rogers Sectional Wheel Shear Blade and Light Face Grinder



A fast automatic grinder.

*Write for full
description and
PRICES*

Type "R"
Eight Sizes, 76", 84", 90", 96",
108", 120", 130", 144".

Samuel C. Rogers & Co., 211 Dutton Ave.,
BUFFALO, N.Y.

BURKE

No. 222 Drill Press



Burke Drill Presses have been
in use for the past thirty years
and are sold all over the world.

The new No. 222 Drill with
vertical motor carries the same
high grade workmanship that
characterizes all Burke Tools.

When the problem of drilling
presents itself, drop us a card,
and we will both profit by same.

The Burke Machine Tool Co.

297 East 16th Street,

Conneaut, Ohio,

U. S. A.

Noiseless, Fast Riveting with a GRANT



Speed—One rivet per second.

Uniformity—Each rivet is finished to the exact degree of tightness or looseness you require.

Finish—Heads perfectly formed, unmutated.

GRANT ROTARY

So well adapted to difficult work that no corner is too inaccessible for it to place a rivet. Yet it is so simple in operation that a boy or girl can handle it efficiently.

*Send samples of your work
for riveting and cost estimate*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.
Hartford, Conn., U. S. A.



DEPENDABLE

Hollow Bored Forgings—Steel Shafts



A dependable source of supply saves a great deal of worry and often prevents serious mistakes. "American" Hollow Bored Forgings and Steel Shafts for lathe spindles, hydraulic cylinders, rams, clutch shafts, etc., can be depended upon invariably. The quality is unvarying, delivery prompt, and prices are most reasonable.

Send Blueprints for Trial Quotation

American Hollow Boring Co.
Erie, Penna.

Screw Machine Products Up to 1 $\frac{3}{4}$ " Diameter

Any Quantity

Steel — Brass — Bronze
Stainless Steel — Rustless Iron

Accuracy and Prompt Delivery

The Gravity Carburetor Co.

Machine Screw Department

3068 East 93rd St.,

Cleveland, Ohio

A Drill Table and Vise in One Tool

Set-ups on even difficult jobs in one-half the time, with perfect safety and accuracy. Saves time and increases output. Try one in your shop.

Write for free trial offer



*A safety tool that saves
its cost in labor every
six months*

Modern Machine Tool Co.
Jackson, Michigan

A New 12-Inch Hi-Speed Drill

“Buffalo”

This new production drill has ball bearings throughout. Its construction is compact, it's balanced so well that it won't vibrate, regardless of speed, and it's simple to operate.

Four positive spindle speeds, up to 10,000 R.P.M. are provided by means of the two upper spindle pulleys and the two lower drive pulleys.

Bulletins sent on request

Buffalo Forge Co.

161 Mortimer St., Buffalo, N. Y.

*In Canada: Canadian Blower &
Forge Co., Ltd., Kitchener, Ont.*



Made in 6 Sizes for Balancing Anything That Revolves up to 24000 lbs.



Anderson Improved Balancing Ways

Require no leveling or adjustment. They are especially sensitive! Spindles and discs are hardened like the frame—they cannot lose their effectiveness or become injured by use.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code	Bond	Bod	Bis	Bih	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

The Springfield Straightening Press

"The Acme
of
Convenience"



Made in
3 Sizes

Invaluable
in the
tool room,
also for
straightening
crank and
cam shafts
and other
automobile
parts.

A GREAT LABOR SAVER, as you will find the arrangement of this Press makes it the very *acme of convenience*. Any work within the range of centers may be tested and straightened without unnecessary walking from press to lathe each time in straightening rough or finished work. Any length, however, may be operated upon. Of "Springfield Quality" thruout.

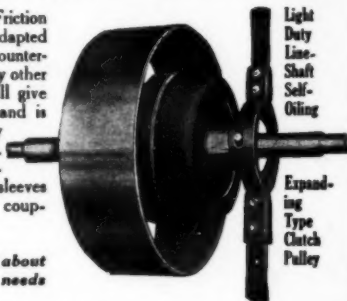
Write for folder illustrating many of its uses

The Springfield Machine Tool Company
633 West Southern Avenue, SPRINGFIELD, OHIO
We also manufacture Engine Lathes and Shapers

Edgemont Type B Friction Clutch

The Type B Friction Clutch is well adapted for line-shaft, counter-shaft and many other drives. It will give good service and is simple and easy to operate. Made in pulleys, extended sleeves and cut-off couplings.

Write us now about your clutch needs



Light
Duty
Line-
Shaft
Self-
Oiling

Expand-
ing
Type
Clutch
Pulley

Edgemont Machine Co., Inc., DAYTON OHIO

Something to Move? —



Heavy? Awkward?
Hard to Get At?
That's when you need—and appreciate—the

"CANTON" Portable Crane, Hoist and Truck

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. *One man* can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old 'Cantons' at small extra cost.

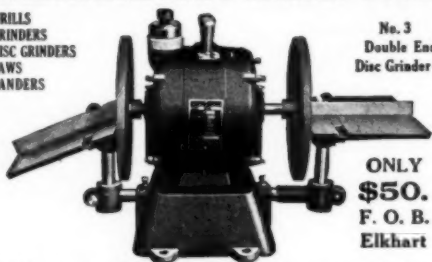
The several sizes are shown in Booklet E-8

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 101 West 31st Street

Winterhoff Motor Driven Portable Tools

DRILLS
GRINDERS
DISC GRINDERS
SAWS
SANDERS



No. 3
Double End
Disc Grinder

ONLY
\$50.
F. O. B.
Elkhart

The No. 3 has been designed to meet a demand for a medium priced machine that would furnish a true flat grinding surface, and would stand up under any usage. Its sturdiness, accuracy and handiness are unsurpassed. *Write today concerning Winterhoff Portable Tools.*

Winterhoff Tool & Machine Co., 109 South Elkhart Ave.,
ELKHART, IND., U.S.A.

Good Work follows Good Light



PATENTED
Jan. 30, 1917

Type 6
MODEL 1925

YOUR investment in inexpensive "AUTES" swivel-jointed extension reels will be paying big dividends long after the first cost is forgotten.

An "AUTES" enables your men to do better work in less time. Popular in Machine Shops, Service Stations and Industrial Plants of every size.

Approved by the Underwriters

Equipped with Rubber Covered Cord

Write for descriptive circular



The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio



Taps Broken At or Below The Surface

Delay Work—Increase Costs

Avoid these consequences by having a *Walton Tap Extractor* handy. Simply insert its flutes into the broken tap, twist the end, and the tap slides out. So simple that an apprentice can do it.

Made in three and four-flute styles.

We Ship on a 60-day Trial

*Send for a "Walton"—
you'll never regret it*

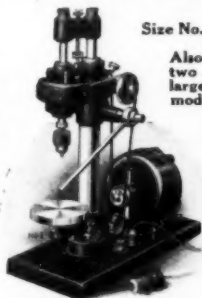
The Walton Company
302 Pearl St., Hartford, Conn.

Use the A. M. Sensitive Drill

for Work of Highest
Quality—Accuracy

It will drill holes as small as .010" in diameter, yet is sufficiently sturdy to carry a drill 3/16" in diameter through any material—and up to 1/4" in softer materials. Can also be used for countersinking, chamfering, reaming, lapping, tapping, end milling, etc. Spindle speeds are constant with positive control. Highly recommended by users in practically every industry.

Write for Booklet "C"



Also
two
larger
models

ADOLPH MUEHLMATT
434-436 Ehn St., Cincinnati, Ohio

Economy Production On Small Parts Of All Shapes



Wide adjustability of feeds and speeds.

Work is clamped and ejected automatically.

Both hands left free to handle work.

Stecher Automatic Universal Bench Drill

A momentary pressure on the knee control under the bench, and the Stecher Automatic does the rest, leaving both of the operator's hands free to handle the work. It clamps the piece, feeds the drill thru it, and ejects it without a hitch.

The number of holes that can be drilled in a given time is limited only by the capacity of the drill; the feed and speed of which are easily adjustable to the work in hand.

By merely pulling down the hand lever the Stecher will change from an automatic production tool with a power feed, to a high speed, hand feed, sensitive drill press.

*Send us a sample of your small parts to be drilled,
and we will show you real economy*

The Chas. Stecher Co., 2452 N. Greenview Ave.,
CHICAGO, ILLINOIS

KRW Hydraulic and Sensitive ARBOR PRESS

Now Sold Direct To User
At Greatly Reduced Prices

\$115⁰⁰ F. O. B.
Factory

COMPLETE With All
Attachments as shown

The latest improved combination KRW Hydraulic and sensitive Arbor Press incorporates many new improvements, not found in any other Arbor Press, at any price.

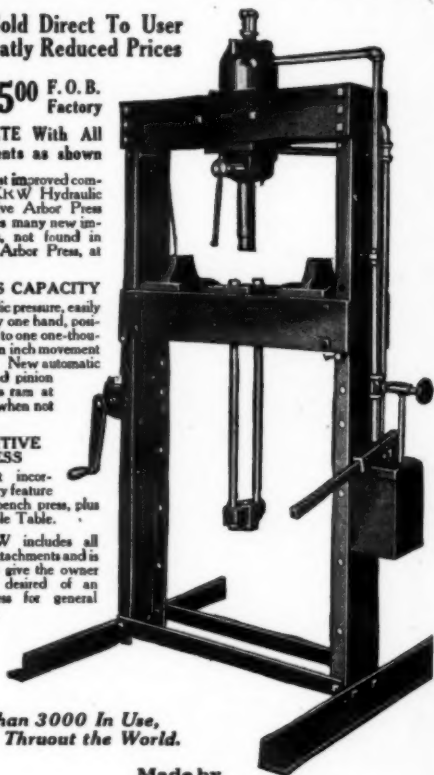
35 TONS CAPACITY

By hydraulic pressure, easily operated by one hand, positive control to one one-thousandth of an inch movement of the ram. New automatic air vent and pinion brake holds ram at any height when not in use.

SENSITIVE PRESS

Attachment incorporates every feature of a 3 ton bench press, plus—Adjustable Table.

The KRW includes all necessary attachments and is designed to give the owner everything desired of an Arbor Press for general garage use.



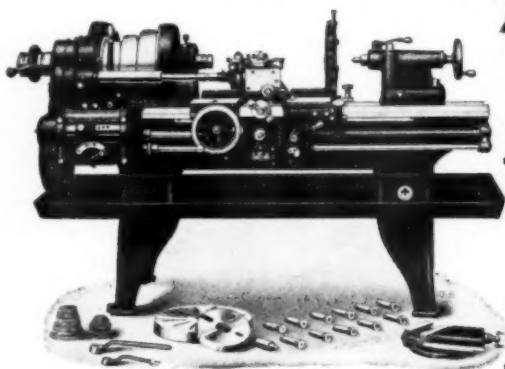
*More Than 3000 In Use,
Thruout the World.*

Made by

K. R. WILSON, 10-14 Lock St., BUFFALO, N. Y., U.S.A.

LeBlond Precision Tool

**For the Most Exacting Tool
Accuracy—Rigidity**



15" Precision Tool Room Lathe

**The R. K. LeBlond Machine Co.
Cincinnati, Ohio**

Blond Tool Room Lathes

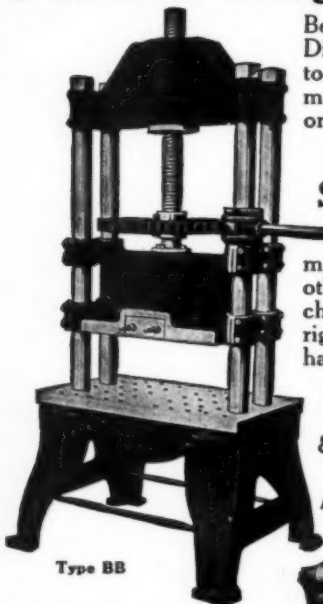
Tool Room Requirements Accuracy—Convenience

We offer for the tool room our newly developed Precision Tool Room Lathes with any or all of the attachments required for tool room work. These lathes are built to the highest standards of accuracy and precision.

A complete system of jigs, fixtures, gauges and thread standards are used in their production and tests, and each lathe must be within our close standards of inspection.

Machine Tool Company
Cincinnati, Ohio

Perfect Alignment



Type BB

Between Punch and Die enables one man to do speedier and more accurate work on this

Four Post Screw Press

than two men can do on any other type of machine. Sensitive and rigid in operation, it has power to shear in any die within its capacity.

**80 tons pressure—
table 20"x36"**

Also three smaller sizes

Surface Grinder

Silent efficiency is the action of this powerful and rigid surface grinder—equipped with graduated feeds and all the latest attachments.

Price and details on inquiry

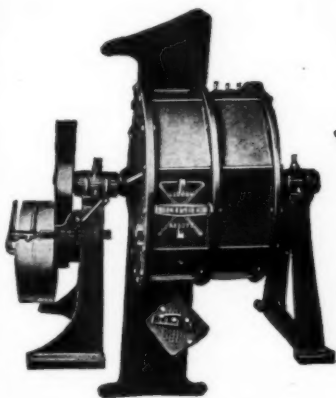
**JARECKI MACHINE
AND TOOL CO.**

Department A

GRAND RAPIDS,

MICHIGAN





**What
ONE
Abbott
Burnishing
Barrel
is Doing!**

14 months ago an Abbott triple compartment burnishing barrel was installed in the plant of a prominent Eastern manufacturer. Since then the original purchase price has been repaid *several times over* by savings in finishing costs.

One of the items burnished is a small brass rod about $1\frac{1}{4}$ " in length—thousands of which are finished at each loading and which formerly presented a knotty finishing problem. The Abbott Barrel turns out these parts by the bushel—and at a saving of 1 cent on each piece. On small perforated steel disks the savings are estimated at about four dollars per thousand. Imagine the savings on every load!

The above is a single instance involving one manufacturer. While your work may not include brass rods and disks, the Abbott Process is adapted to an infinite variety of small metal articles.

Send us samples for a burnishing analysis—Abbott Barrels may effect some startling savings for you.

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave.,

Hartford, Conn.



Atlas Arbor Presses

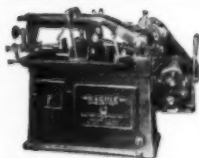
For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*



Racine Shear Cut Production Saw—Positive screw feeds, cutting time never varies. Blade life is trebled.

Outstanding Advantages

Positive Screw Feed—An exclusive feature of the Racine Shear Cut.

Continuous Lubrication of Saw Guide through an oiling pad, and—

Wick oilers on main bearings are also exclusive Shear Cut features.

Racine metal cutting machines have many outstanding advantages. For efficiency, long life and economy, specify Racine Machines for your metal cutting department. New catalog and free cutting chart on request. Write

Racine Tool & Machine Co.

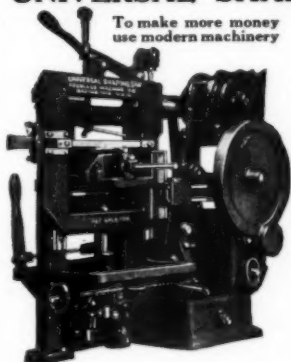
1429 Junction Ave., Racine, Wis.

RACINE

HIGH-SPEED

METAL CUTTING MACHINES

—PEERLESS— UNIVERSAL SHAPING SAW



To make more money
use modern machinery

**Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy**

SIZES:

6"x6"--9"x9"--13"x13"

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HIGH SPEED HACK-SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

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Racine, Wisconsin

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AT LAST!! A Sensible Positive Means for Holding Taps



Ettco

TAP HOLDING CHUCK

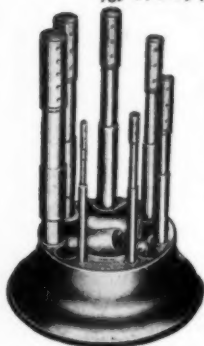
A Visible Positive Grip on the Square.
Centers on the Round.

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The Copperhead Lap Set

contains 7 Laps in following sizes:

$\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$.



The body of a *Copperhead Lap* is made of steel and permanent, the sleeve is made of copper and renewable when worn out. Copperhead Laps are cost reducers; cut freely, and produce a clean and true hole. They have new and patented features.

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Lourie Hydraulic Machinery

High Speed and Heavy Duty

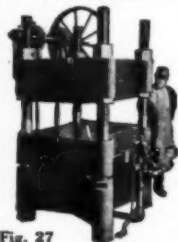


Fig. 27

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For
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"Utility Tools"

Cut Replacement Costs

This Interchangeable Counterbore and Spot Facer is equipped to serve you better, longer and with greater economy—because of

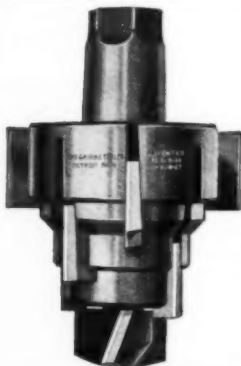
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CUTTERS

SOLID

AND

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Our Technical dept. devotes its time exclusively to planning and designing tools to suit your requirements.

Send us your Blue Prints or parts to be machined, we will design and suggest tools to produce holes most economically.

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A U.S. Multiple Spindle Drill Head transforms a single-spindle drill into a multiple spindle.

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THEY ALL have patented double adjustment, which permits drilling in any pattern. *Writing us incurs no obligation.*

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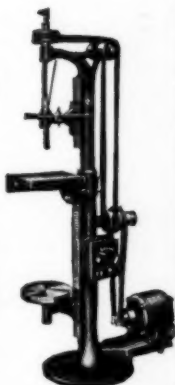
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Or with Counter-
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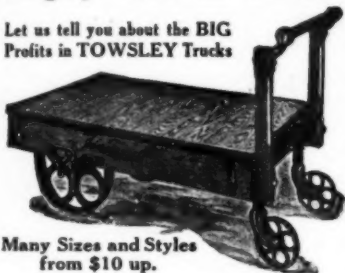
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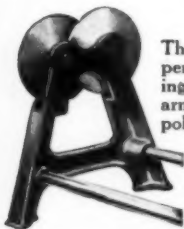
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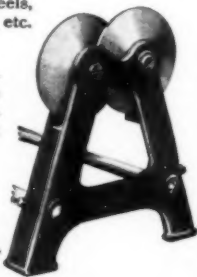
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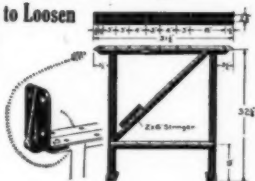
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Select the chairs and
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from this line. They
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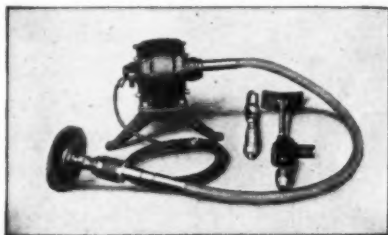
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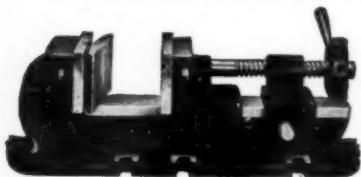
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Irregular
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**Time and Labor
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Quickly Pay for
Them!**



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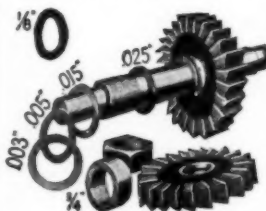
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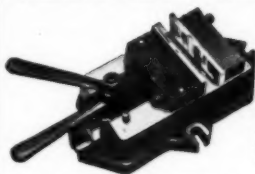
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Maximum opening...3½"
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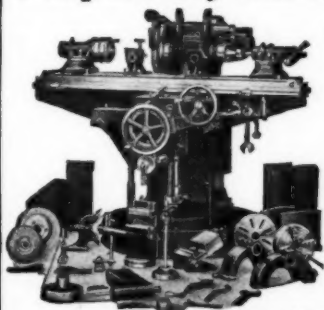
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Hisey-Wolf Machine Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.

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Grinding Machines, Cutter, Reamer and Tool

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oliver Instrument Co., Adrian, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Porter Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids, Mich.
La Salle Tool Co., Ottawa, Ill.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.
Rogers & Co., Samuel C., Buffalo, N. Y.

Grinding Machines, Flexible Shaft

Keller Mch. Eng. Corp., 68A Washington St., Brooklyn, N. Y.

Grinding Machines, Internal

Mall Tool Co., 8389 S. Chicago Ave., Chgo.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Knife and Shear Blade

Rogers & Co., Samuel C., Buffalo, N. Y.

Grinding Machines, Milling Cutter

Rogers & Co., Samuel C., Buffalo, N. Y.

Grinding Machines, Portable Electric

Hisey-Wolf Machine Co., Cincinnati, O.
Keller Mch. Eng. Corp., 68A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Porter Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5901 N. Lincoln St., Chgo.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hill-Curtis Co., Kalamazoo, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids, Mich.
La Salle Tool Co., Ottawa, Ill.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool

Hill-Curtis Co., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Hack Saw Blades

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Handles, File

Hyro Mfg. Co., 352 W. 13th, New York.

Handles, Soldering Iron

Hyro Mfg. Co., 352 W. 13th, New York.

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Hydraulic Machinery

Laurie Hydraulic Co., Springfield, Ill.

Jigs and Fixtures

Hartford Special Mch. Co., Hartford, Conn.

Keyseating Machines

Burr & Son, John T., Brooklyn, N. Y.
Chattanooga Mch. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments

Cisco Machine Tool Co., Cincinnati, O.

Lathe Turrets

Maxwell Products Co., Cleveland, O.

Lathes, Bench

Gerold Co., 120 Liberty, New York
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
Monarch Machine Tool Co., Sidney, O.
Oliver Mfg. Co., W. W., Buffalo, N. Y.

Lathes, Engine

American Tool Works Co., Cincinnati, O.
Boye & Emmes Mch. Tool Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll & Jamieson Mch. Tool Co., Batavia, O.
Cincinnati Lathe & Tool Co., Cincinnati, O.
Cisco Machine Tool Co., Cincinnati, O.
Hamilton Tool Co., Hamilton, O.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
McCabe Lathe & Machinery, Corp., J. J., 149 Broadway, New York
Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap

Rahn-Larson Co., Cincinnati, O.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Manufacturing

Sundstrand Machine Tool Co., Rockford, Ill.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Precision

Gerold Co., 120 Liberty, New York
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Short Bed

Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.

Lathes, Too Room

Cisco Machine Tool Co., Cincinnati, Ohio.

Lathes, Turret

Bradford Machine Tool Co., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.

Classified Finding Index

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Hollow

Hyro Mfg. Co., 352 W. 18th, New York.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Milling Attachments

Burke Machine Tool Co., Connessut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Modern-Bond Corp., Wilmington, Del.
Porter-Cable Machine Co., Syracuse, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Tables

Modern-Bond Corp., Wilmington, Del.

Milling Machines, Bench

Burke Machine Tool Co., Connessut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Hand

Burke Machine Tool Co., Connessut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Burke Machine Tool Co., Connessut, Ohio
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical

Burke Machine Tool Co., Connessut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow

Genesee Mfg. Co., Rochester, N. Y.

Motors, Electric

Fairbanks, Morse & Co., Chicago
Reliance Electric & Eng. Co., Cleveland

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Oil Cups

Gilts Bron. Mfg. Co., 1940 S. Kilbourn Ave., Chicago
Tucker, W. W. & C. F., Hartford, Conn.

Oil Extractors

Tothurst Machine Works, Troy, N. Y.

Oil Grooving Attachments

Cisco Machine Tool Co., Cincinnati, Ohio

Oil Hole Covers

Tucker, W. W. & C. F., Inc., Hartford, Conn.

Pattern Shop Machinery

Towsley Mfg. Co., John T., Cincinnati

Pins, Leader And Dowel

Danly Machine Specialties, Inc., 6918 Lincoln Ave., Chicago

Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia

Pipe Cutters, Hand

Saunders' Sons, D., Inc., Yonkers, N. Y.

Pipe Cutting and Threading Machines

Chicago Pipethread Co., Racine, Wis.
Gateman Mfg. Co., Manitowoc, Wis.
Saunders' Sons, D., Inc., Yonkers, N. Y.

Pipe Threading Dieheads

Saunders' Sons, D., Inc., Yonkers, N. Y.

Pipe Vises

Saunders' Sons, D., Inc., Yonkers, N. Y.

Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Planing Machines

Cincinnati Planer Co., Cincinnati, Ohio
Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines

Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines

Cisco Machine Tool Co., Cincinnati, O.
Hill-Curtis Co., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Mail Tool Co., 7730 S. Chicago Ave., Chicago
New Britain Machine Co., New Britain, Conn.
North Side Tool Co., Dayton, Ohio
Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Laurie Hydraulic Co., Springfield, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 3263 Cottage Grove Ave., Chicago
Wilson, R. K., Buffalo, N. Y.

Presses, Broaching

Laurie Hydraulic Co., Springfield, Ill.

Presses, Drawing

Laurie Hydraulic Co., Springfield, Ill.

Presses, Flanging

Laurie Hydraulic Co., Springfield, Ill.

Presses, Foot

Rockford Iron Works, Rockford, Ill.

Taylor & Fenn Co., Hartford, Conn.

Presses, Forcing

Laurie Hydraulic Co., Springfield, Ill.

Lucas Machine Tool Co., Cleveland, O.

Presses, Forming

Laurie Hydraulic Co., Springfield, Ill.

Presses, Power

Handley & Whittmore Co., Beloit, Wis.
Laurie Hydraulic Co., Springfield, Ill.
Lucas Machine Tool Co., Cleveland, O.
Rockford Iron Works, Rockford, Ill.

Presses, Punch

Lewthwaite Mchs. Co., T. H., 417 E. 81st., N. Y.
Rockford Iron Works, Rockford, Ill.

Presses, Screw

Jarecki Mchs. & T. Co., Grand Rapids, Mich.
Towsley Mfg. Co., John T., Cincinnati

Presses, Wheel

Laurie Hydraulic Co., Springfield, Ill.

Profiling Machines

Oliver Instrument Co., Adrian, Mich.

Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split

Conway Clutch Co., Cincinnati, O.

Classified Finding Index

Pumps, Coolant

Fuller Specialties Co., Blanchester, O.
Lohoe Pump & Mch. Co., Buffalo, N. Y.

Pumps, Hydraulic

Lohoe Pump & Mch. Co., Buffalo, N. Y.
Lohoe Hydraulic Co., Springfield, Ill.

Pumps, Lubricant

Rothman Machinery Co., Cincinnati, O.

Punch Press Feeds

Rockford Iron Works, Rockford, Ill.
Wittek Mfg. Co., 2332 S. Kedzie Ave.,
Chicago

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Hyro Mfg. Co., 352 W. 13th, New York
Lewthwaite Mch. Co., T. H., 417 E. 31st St.,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power

Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies

Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417 E. 31st, N. Y.
Rockford Iron Works, Rockford, Ill.

Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.
Pollard Bros. Mfg. Co., 4038 N. Tripp Ave.,
Chicago
Yoke Supply Co., Wm. S., Canton, O.

Reamers, Adjustable

Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Expanding

Lambert Mch. & Engineering Co., Cleveland, O.

Reamer Holders

Nicholsen & Co., W. H., Wilkesbarre, Pa.

Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Roll Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417 E. 31st, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.

Saw Sharpening Machines

Wardwell Mfg. Co., Cleveland, O.
Wagers & Co., Samuel C., Buffalo, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Elsey-Wolf Machine Co., Cincinnati, O.

Screw Driving Machines, Automatic

Kerns Machine Co., Massillon, Ohio

Screw Machine Products

Gravity Carburetor Co., Cleveland, O.

Screw Machines, Automatic

New Britain Mch. Co., New Britain, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Inc., Philadelphia

Shafts, Flexible

Keller Mach. Eng. Corp., 334 Washington St.,
Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave.,
Chicago
New Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 3031 N. Lincoln St.,
Chicago

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Rhodes Mfg. Co., Hartford, Conn.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Machine Co., T. H., 417 E. 31st
St., New York
Oliver Mfg. Co., W. W., Buffalo, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power

Hendley & Whittemore Co., Beloit, Wis.

Slotting Machines

Rhodes Mfg. Co., Hartford, Conn.

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Gateman Mfg. Co., Manitowoc, Wis.
Groetchen Tool & Mfg. Co., 721 Fulton,
Chicago
Stecher Co., Chan., 3432 N. Greenview Ave.,
Chicago
U. S. Tool Co., Inc., Ampers, N. J.

Speed Reducers

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago

Sprockets

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago
Pollard Bros. Mfg. Co., 4038 N. Tripp Ave.,
Chicago

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Tromer Mfg. Co., John T., Cincinnati
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procon Safety Chuck Co., 18 S. Clinton
St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Gateman Mfg. Co., Manitowoc, Wis.
Procon Safety Chuck Co., 18 S. Clinton
St., Chicago

Tapping Machines and Attachments

Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Clisco Machine Tool Co., Cincinnati, Ohio
Eastern Tube & Tool Co., Inc., 580 Johnson
Ave., Brooklyn, N. Y.
Gateman Mfg. Co., Manitowoc, Wis.
Leland-Gifford Co., Worcester, Mass.
Procon Safety Chuck Co., 18 S. Clinton
St., Chicago

Rickert-Shafer Co., Erie, Pa.
Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colven, J. M., Yonkers, N. Y.

Classified Finding Index

Thread Milling Attachments

Cisco Machine Tool Co., Cincinnati, O.

Threading Machines

Gateman Mfg. Co., Mantlewood, Wis.

Hickert-Shafer Co., Erie, Pa.

Threading Tools

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Western Tool & Mfg. Co., Springfield, O.

Tool Racks

Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Tool Stands

Pollard Bros. Mfg. Co., 4080 N. Tripp Ave., Chicago

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Spot Facing

Genesco Mfg. Co., Rochester, N. Y.

Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.

Pollard Bros. Mfg. Co., 4080 N. Tripp Ave., Chicago

Towley Mfg. Co., John T., Cincinnati

Turntables

Canton Foundry & Machine Co., Canton, O.

Universal Joints

American Tool Works, Inc., Hartford, Conn.

Borgeson Mfg. Co., Inc., Torrington, Conn.

Boston Gear Works Sales Company, Norfolk Downs, Mass.

Used and Rebuilt Machinery

Bath & Co., Cyril J., Cleveland, O.

Bennett Mch. Co., 50 Church St., New York

Bernstein & Co., Geo. M., 548 W. Washington Bld., Chicago

Brown Machinery Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.

Carlson Machinery Co., Davenport, Iowa

Central States Machinery Co., 134 South Clinton, Chicago

Cincinnati Mch. & Supply Co., Cincinnati, O.

Clark Machinery Co., Cleveland, O.

Davis Machinery Exchange, Toledo, O.

Delta Equipment Co., Philadelphia, Pa.

Donahue Steel Products Co., 74th and Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.

Empire Machinery Exchange Co., Inc., Cleveland, Ohio

Easley Machinery Co., E. L., 555 Washington Blvd., Chicago

Fitzsimmons-Cole Mch. Co., Pittsburgh, Pa.

Foster Machinery Co., Cleveland, O.

Harris Bros. Co., 26th & Iron, Chicago

Hill, Clarke & Co., 649 W. Washington Blvd., Chicago

Hyman & Sons, Joseph, Philadelphia

Indianapolis Mch. & Supply Co., Indianapolis, Ind.

International Mch. Co., Detroit, Mich.

Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, O.

Kinsley Co., E. A., Cincinnati, O.

Klauber Mch. Co., E. L., St. Louis

Lee Machinery Co., Inc., Detroit, Mich.

Little Co., W. P., Cleveland, O.

McCabe Lathes & Machinery Corp., J. J., 149 Broadway, New York

McDonald Machinery Co., St. Louis

McMullen Mch. Co., Grand Rapids, Mich.

Manning, Maxwell & Moore, Inc., 27 No. Jefferson, Chicago

Warr-Gallbreath Mch. Co., Pittsburgh, Pa.

Marsh Machinery Co., A. R., Cleveland, O.

Midland Equipment Co., 612 W. Van Buren, Chicago

Mid-West Machine Tool & Supply Company, Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.

Molitor Mch. Co., Chas., 118 B. Clinton St., Chicago

Morey and Co., Inc., 408 Broome St., N. Y.

Morris Machinery Co., Inc., Newark, N. J.

Metz & Merryweather, Cleveland, O.

Nelson Machinery Co., Green Bay, Wis.

Niles Tool Works Co., Hamilton, O.

Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia

Osborne & Sexton Mch. Co., Columbus, O.

Pennman Bros., 706 W. Washington Blvd., Chicago

Randle Machinery Co., Cincinnati, O.

Reed-Prentice Corp., Worcester, Mass.

Reeve-Fritts Co., 37 S. Desplaines, Chicago

Ralliance Mch. Sales Co., Pittsburgh, Pa.

Riverside Machinery Depot, Detroit, Mich.

Rosenfeld Mch. Co., 942 W. Lake St., Chgo.

Russell Machine Co., Pittsburgh, Pa.

Saltzman, B. L., 809 W. Lake St., Chicago

Selfroot-Kistad Machinery Co., Dayton, O.

Severin-Strafer Machinery Corp., 30 Church St., New York

Simmons Machine Tool Corp., Albany, N. Y.

Stoehr Machinery Co., R. M., 418 M. City Bank Bldg., Chicago

Strong, Carlisle & Hammond Co., Cleveland

Sun Machinery Co., Newark, N. J.

Syracuse Supply Co., Syracuse, N. Y.

Taylor-Hall Welding Corp., Worcester, Mass.

Tinners Mch. Co., 601 W. Monroe, Chicago

Tubor, Velick & Co., Inc., Lake & Desplaines Sts., Chicago

United Mch. & Supply Co., St. Louis

Wayne Machinery Co., Ft. Wayne, Ind.

Wertman Mch. Co., M. A., Cleveland, O.

White Mch. Co., A. D., 108 N. Jefferson St., Chicago

Winterer, Herman L., Philadelphia

Vises, Drilling Machine

Armstrong-Hum Mfg. Co., 341 N. Francisco Av., Chicago

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Central Distributing Co., Detroit, Mich.

Graham Mfg. Co., Providence, R. I.

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Marsh Machinery Co., A. R., Cleveland, Ohio

Martin Tool & Die Works, J. E., Springfield, O.

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Hartford Special Mch. Co., Hartford, Conn.

Marsh Machinery Co., A. R., Cleveland, Ohio

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Vises, Shaper

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Welders Electric Spot

Taylor-Winfield Corp., Warren, O.

Welding Head, Seam

Welding Appliance Co., 2111 W. Lake St., Chicago

Wood Working Machinery

Bendler & Whittemore Co., Beloit, Wis.

New Britain Machine Co., New Britain, Conn.

Porter-Cable Machine Co., Syracuse, N. Y.

Towley Mfg. Co., John T., Cincinnati

Worms

Massachusetts Gear & T. Co., Woburn, Mass.

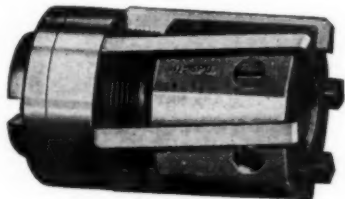
Wrenches, Nut

Greene, Tweed & Co., 109 Duane St., N. Y.

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"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

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Bolt threaders, 1 $\frac{1}{2}$ " National, (2) each	150.
Bolt threaders, 2" National, (3) each	175.
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Grinder, No. 183 Wells, cutter & tool.
Grinder, 8"x18" Ott plain.
Lathe, 9"x12" Sundstrand prod.
Lathe, 11"x5" Star, c. r.
Lathe, 16"x8" Flather, q. c. g.
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Miller, No. 3 Oesterlein plain.
Miller, No. 4 Fox plain.
Miller, No. 2 Rockford, plain.

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Planer, 24"x24"x6' Rockford.
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Press, No. 14 Cons., o. b. i.
Press, No. 2 V. & O., o. b. i.
Press, No. 1004 Waterbury, bench.
Press, No. 3-P Am. Can solid bk.
Press, No. 3 Bliss solid back.
Press, No. 3 Hoeft o. b. i.
Rivet spinner No. 83 Grant, dbl. sp.
Screw mche. No. 1 Foster 13/16" cap.
Shaper, 16" Queen City b. g., crank.
Shop saw, 6x6 Racine h. s.
Shop saw, 6x6 Peerless h. s.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Automatics, Nos. 52 & 53 Acme.
Blower, No. 5 Champion, 64" outlet.
Blower, Amer. pressure, 461 cu. ft.
Bolt cutter, 4" Acme, class "A," 2-sp.
Bolt cutter, 18" Acme, double head.
Bolt cutter, 24" Acme, single head.
Boring mill, No. 44 D. & H., floor type, 34" bar.
Boring mill, Niles horiz., 44" bar.
Boring mill, 42" Bullard, 2 heads.
Bulldozer, No. 4 Williams & White.
Brake, 48" Keane, capacity 1/2".
Broach, No. 3 LaPointe.
Buffers, 10 h. p. 220-360, 3600 r.p.m.
Car wheel borer, 42" Ridgeway.
Cutting-off machine, 6" Hurlburt-R.
Drills, 26" Barnes, sliding head.
Drills, 36" Snyder, sliding head.
Gear cutter, 40"x9" G. & E., s. p. d.
Gear cutter, No. 13 Brown & Sharpe.
Grinder, 5 h. p. U. S. 220-360.
Grinder, Oliver drill, 4" cap., m. d.
Grinders, Nos. 11 & 12 B. & S. pl.
Grinder, 12"x24" Modern plain.
Grinder, No. 3 Wilmarth & M. sur.
Grinder, No. 3 Brown & S. univ.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 24 Woods universal, magnetic chuck.
Grinder, No. 2 Gardner disc, m. d.
Grinder, No. 16 Besly, double disc.
Hammer, 80 lb. Bradley cush. helve.
Hammer, 300 lb. Bradley upright.
Lathes No. 3 Harding Precision (3).
Lathe, 12"x6" Seneca Falls, q. c. g.
Lathe, 12"x16" Davis tool rm., q. c. g.
Lathe, 14"-28" Fay & Scott gap.
Lathe, 16"x6" Hendey, g. h., m. d.
Lathe, 18"x8" American, late type.
Lathe, 18"x16" W.-B., g. h., s. p. d.
Lathe, 24"x12" Boye & Emmes, q. c. g.

Lathe, 30"x12" Boye & Emmes, q. c. g.
Miller, No. 2 Kempsmith universal.
Miller, No. 3 Kempsmith plain, v. a.
Miller, No. 4 Hendey plain, s. p. d.
Miller, No. 4 Brown & Sharpe univ.
Miller, No. 5 Cincinnati pl., s. p. d.
Miller, Gooley & Edl. Briggs type.
Pipe machine, 1" to 2" Williams.
Pipe mche., Jarecki 1 1/2" to 6", m. d.
Pipe mche., E., C. & B., 2 1/2" to 8".
Pipe machine, Merrill, 2 1/2" to 12".
Press, No. 87 Niagara screw press.
Press, No. 18 Bliss o. b. i., 3" stroke.
Press, No. 3 Adriance o. b. i., 3 1/2" str.
Press, No. 64 Toledo o. b. i., gr., m. d.
Press, No. 7 Consolidated o. b. i., grd.
Press, No. 8 Consolidated o. b. i., grd.
Press, No. 3 Loshbough-J. o. b. i.
Press, 30-ton Lucas forcing.
Press, Ferracute DD2, o. b. i., cam.
Press, No. 16 Bliss horning.
Press, No. 54 Toledo trimming.
Press, No. 744 Bliss trimming.
Planer, 24"x24"x6' Powell, 1 head.
Planer, 30"x30"x8' Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 lds.
Planer, 48"x38"x12" Gray, rev. m. d.
Planer, 48"x48"x12" Betts, 3 heads.
Punch, Wickes, 48" thrt., cap. 1 1/2"x1".
Radial drill, 4" Mueller plain. (2).
Radial drill, 6" Bickford plain g. b.
Saws, No. 5 Marvel high spd., 6x6, (2).
Saw, 14" American metal swing m. d.
Separator, Dings magnetic, b. d.
Shaper, 30" Milwaukee, b. g. crank.
Shaper, 24" Cincinnati, b. g. crank.
Shaper, 24" Potter-Johnson crk. m. d.
Slotter, 15"-18" Dill, m. d.
Tapper, 1" Webster & Perks, 1-spdl.
Tapper, 1 1/2" Webster & Perks, 2-spdl.
Thread roller, No. 119 Bliss.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

Severin-Strafer Machinery Corp., 30 Church St., New York City

BORING MILLS, VERTICAL.

14"-20' Betts, extension type.	48" Gisholt, rapid traverse.
60" Bullard, single pulley drive.	42" Bullard, turret head.
38"-44" Niles Bement Pond side hd. mill, single pulley drive, chuck table, rapid traverse, latest type.	42" King modern rapid traverse.
	52" Niles-B.-P. turret & plain head.

BORING MILLS HORIZONTAL.

5" bar Newark, knee type.	44" bar Niles.-B.-P., floor type.
5" bar Beamen & Smith floor type.	3" bar Lucas single pulley drive.
No. 1 Betts 3" bar, knee type.	No. 32 Lucas, 34" bar single pulley drive.
5" bar Deitrich & Harvey, floor type.	

BORING BARS.

5-new Underwood portable outfits, 4" bars 8' long, with geared feed, driving mechanism, 2 spiders, 2 bushings, 1 cutter head, each \$325.

COMPRESSORS.

5000' Bury direct connected, a. c.	Sullivan horizontal, belt 8"x10"
10"x10" Curtis duplex.	Ingersoll Rand 200' plate valves.

MILLING MACHINES.

No. 2-B heavy Brown & Sharpe.	No. 2A Hendy-Norton univ.
No. 3 Cincinnati plain, high power.	No. 4 Cincinnati, vertical.

DRILLS.

3' Fosdick radial, latest, s. p. d.	23" Snyder (new).
5' Niles B. P., semi-universal radial, speed box drive, tilting table.	24" Aurora sliding head.
No. 11 Natco, 12-spindles.	36" Prentice sliding head.
No. 25 Foote-Burt, heavy duty.	36" Aurora, sliding head.
	2-spindle Avey, h. a.

GRINDERS.

No. 12 Brown & Sharpe plain.	18" Besly disc.
No. 13 Brown & Sharpe plain.	84" Diamond surface.

LATHES.

72"x40' Sellers, rapid traverse.	24"x12' Reed-Prentice, g. h.
54"x24' H. S. and M. quick change.	22"x12' Niles oil country.
48"x18' Fifeild t. g.	18"x18' Reed, belt drive.
30"x16' N. B. P., motor drive, d. c.	16"x8' Hendey.
27"x14' American, taper attachment.	16"x8' Pratt & Whitney, g. h.
24"x27' Flather (new).	

TURRET LATHES.

No. 3A Warner & S. chuck equip.	No. 4 Warner & Swasey with equip.
No. 2 Foster, screw machine.	No. 1 B. & O. Fox monitor.

PLANERS.

96"x72"x24' D. & H. openside.	42"x42"x36' N. B. P., rev. m. d.
72"x72"x18' Pond, rev. motor drive.	30"x30"x16' Gray, 3 heads.
60"x48"x14' Cincinnati, gr. box, m. d.	22"x22"x4' Whitcomb, 1 head.
42"x42"x30' new Niles-Bement-Pond.	

PUNCHES AND SHEARS.

No. 5 Hillis & Jones 48" th., m. d.	No. 4 Hillis & Jones horiz., 14"x1".
No. 2 Hillis & Jones 20" throat.	Schatz triple combination.
No. 4 Hillis & Jones double, 48".	

SHAPERS.

16" Worcester, b. d.	20" Kelly, b. d.
16" Whipp b. g. (new).	21" Smith & Mills.

MISCELLANEOUS.

Bending rolls, 12' Niles, 4 cap.	Hammer, steam, 400 lb. Chambersb.
Boring bars, 4" Underwood (new).	Hydraulic forging press, 1200 tons.
Chain blocks, 1-ton with trolleys.	Planer drive, 20 h. p., 230 v., d. c., with controls.
Cold saw, 60" Newton, m. d.	Riveter, Allen pinch type.
Cold saw Newton 32".	Sand slinger for large foundry.
Core wire straightener, 1/2" to 5/16".	Time clocks, shop (12).
Gear cutter, No. 4-36" B. & S. auto.	Wheel press, 150 ton Caldwell.
Gear cutter, No. 2 Bilton.	
Generator, 100 k. w., a. c. Deisel.	

USED AND REBUILT MACHINERY

FOR SALE BY

Nelson Machinery Co.,

123 N. Pearl St., Green Bay, Wis.

Lathes, 9"x12" Sundstrand mfg. (2).

Lathe, 16" Sundstrand mfg.

Radial drill press, 3' Wisconsin, high speed, sensitive, with tapping att., swinging tbl. & finished T slot base

Radial drill press, 5' Dreeses, full

univ., with motor drive and motor.

Tool & cutter grinders, No. 2 Norton

univ. (2).

Turret lathe, 24"x6 1/2" Steidle.

FOR SALE BY

B. L. Saltzman,

524 W. Van Buren St., Chicago, Ill.

MILLING MACHINES.

No. 2 Kempsmith universal.

No. 5 LeBlond.

No. 5 Cincinnati.

Hand milling machines.

GRINDERS.

No. 60 Heald cylinder grinders.

Taylor & Fenn.

Bench and floor type grinders.

LATHES.

16"x10' Lodge & Shipley.

18"x6' Van Dyke.

16"x6' Sidney.

16"x6' Rockford.

PUNCH PRESSES AND SHAPERS.

All kinds and sizes.

Motors and generators of all descriptions.

10' 10 gauge power brake.

Factory transmission.

FOR SALE BY

Fitzsimmons & Cole Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air compressor, 8x8" Bury, 125 ft.

Bolt cutters, 1 1/2", 2", 2 1/2", 4" Landis.

Boring mills, 30" to 16'.

Bulldozer, No. 27 W. & W.

Drills, 14" to 38".

Drill, mult., No. 5 Fox, 10-spindles.

Drill, radial, 4' Dreeses, m. d.

Drill, radial, 6' Prentice, s. p. d.

Flanger, McCabe, 4" capacity.

Gear cutters, spur and bevel.

Gear cutter, spur, No. 6 B. & S.

Gear hobber, 98" Gould & E.

Gear planer, 24" Gleason, bevel, b. d.

Grinder, No. 1 Landis, 10"x20" univ.

Grinder, 12"x96" Norton, b. d.

Grinder, disc, No. 52 Besly.

Grinder, No. 16 Blanchard.

Hammer, 100 lb. Bradley, upright.

Hammer, 200 lb. Beaudry, upright.

Hammers, 2-B, 3-B & 4-B Nazel.

Hammers, steam 600 lb. to 3000 lb.

Hammers, board drop, 1000 lb.

Keyseater, No. 2 Mitts & Merrill.

Lathes, 12" to 60".

Lathe, 18"x10' American, grd. head.

Lathe, 48"x20' Bridgeford, grd. hd.

Lathe, turret, 26" Libby.

Miller, plain, No. 3-B Brown & S.

Miller, plain, No. 6 Brown & S.

Miller, univ. No. 3 Brown & S.

Miller, slab, 24x20x14" Ingersoll.

Pipe machines, 2 1/2" to 12".

Planer, 36"x36"x16" N-B.-P. like new.

Planer, 48"x42"x12" Cincinnati, 2 hds.

Planer, 96"x96"x20' Pond, 4 hds., m. d.

Planer, o. s. 42"x42"x12' Detrick & H.

Planer, rotary, 48" Newton.

Press, geared, No. 34 Toledo.

Press, No. 37 1/2 Bliss, s. s., 6" stroke.

Press, wheel, 300 & 400-t. Caldwell.

Punch, hor., Cleveland, 1" thru 1".

Punch & s. 30" thr. L. & A. 1 1/2" thru 1".

Punch & s. Clev. 36" arch jaw 1 1/2-1".

Riveter, Hanna, 18" thrt., 15" gap.

Riveter, 24" reach, 30-ton.

Riveter, stake, No. 6 Whiting, 48" thrt.

Rolling mill, 6"x10" Standard.

Rolls, bending, 10"x8" Wickes.

Saw, cold, 24" Hunter high speed.

Saw, hack, No. 7 Atkins, 8"x8".

Shaper, 24" Cincinnati.

Shear, angle, 6"x6"x4" L. & A.

Shear, alligator, Lewis 1 1/2" square.

Shear, alligator, United, 5"x5".

Shear, bevel, Lennox 4".

Shear, guil. No. 0 H. & J., 1 1/2" round.

Shear, rotary, No. 3 Quickwork 1 1/2".

Shear, rotary, No. 6 Quickwork 1 1/2".

Shear, squa. 12"x14 ga. Peerless.

Shear, sq., 10"x3/16" W. & R., m. d.

Shear, squar. 72"x14 ga. Niagara.

Shear, squar. 52"x16 ga. Niagara, m. d.

Shear, squar. 30"x18 ga. Toledo, b. d.

Straightener, bar, No. 4-D K. & R.

Straightener, beam, No. 4 H. & J.

Swaging machine, 1" Langeier.

Testing machine, 100,000 lbs.

Upsettters, 1 1/2" to 5".

USED AND REBUILT MACHINERY

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17' 44" Bement-Miles.
37"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.
26"x16' 6" American, q. c. g., grd. hd.
26"x11' Wickes, q. c. g.
25"x10' Niles, q. c. g.
19"x10' Draper, patent head.

18"x10' Rahn-Larmon, q. c. g., taper.
18" x 7' Chard, d. b. g., semi q. c. g.
15"x 8' Sidney, q. c., d. b. g., t. a.
14"x 6' Springfield, latest type, tool room type, t. a.
14"x 6' Lodge & Shipley, patent head, taper, pan bed.
14"x8' Lodge & Shipley, q. c.

TURRET LATHES.

34"x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
20x7' Bridgeport, 24", h. a.
19"x7' Fay & Scott, back grd.
No. 22 1/2 Garvin Monitor.
14"x 6 Warner & Swasey.

No. 3 Foster sc. machines 1-5/16" wire feed, (2).
14"x9" Cincinnati-Acme, wire feed.
No. 4 B. & S., bar feed, all auto. fda.
No. 2 Smurr & Kamen, wire fd., (5).

DRILL PRESSES.

48" Almond, sens. radial, post type.
40" Barnes horizontal radials, (2).
26" Aurora, sliding head.

24" Foote-Burt heavy duty.
21" Aurora, b. g., p. f.
No. 1 1/2 Knight milling & drilling mch.

MILLING MACHINES.

No. 5 Cincinnati, table 9 1/2 x 50 1/2".
No. 5 Brown & Sharpe vertical.
No. 3 Brown & Sharpe, plain, cone type.
No. 3 Hendey, q. c. g.

No. 1 Van Norman hand miller.
No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.
No. 3 Becker universal milling machine.

PLANERS AND SHAPERS.

48"x37"x9' Sellers, 2 heads.
48"x48"x12' Gray, 2 heads.
42"x36"x14' Cincinnati, 4 heads.
28" Woodward & P., crk., gear box.

48" Morton draw-cut shaper.
30"x30"x8' American, 1 head.
15" Lodge & Davis shaper.

BORING MILLS.

24" Bullard, rapid production.
Boring mill, car wheel, 60" Newton.
42" Bullard, 2 swivel heads, (2).

Boring, drilling and milling machine, 17 1/2" Bement-Miles horiz.
Boring mill, No. 1 Sellers hor., 25" bar.

PIPE AND BOLT MACHINES.

4" & 8" Eaton, Cole & B., pipe.
6" Cox, quick opening dies.

4" Armstrong, No. 00 pipe machine.

MISCELLANEOUS.

Arbog. press, No. 8 Greenerd, 36" bet. columns.
Centering mche., 5" Whiton, dbl. sp.
Cold saw, No. 6 Nutter & Barnes.
Elec. hoist, 1-ton Link Belt, 2 ph. a. c.
Electric hoist, 1-ton Shepard, 220 v., d. c., (2).
Generator, No. 100 Oxweld acetyl.
Grinder, 13 1/2"x5' Landis universal.
Grinder, No. 8 Diamond, double end, heavy type.
Grinders, disc, No. 17 Besly (2).
Grinders, several dbl. end electric.
Hammers, 15, 25 & 40 lbs. Bradley helve.
Hammer, 50 lb. Little Giant, belt dr.
Hammers, 60 lb. Bellefonte upright, 2.
Keyseater, Morton 18" stroke.
Keyseater, No. 4 Catlin, m. d.
Punch or gate shears, 72" Cleveland multiple, 15" throat.

Punch press, No. 2 Cons., flywheel.
Punch & shear, No. 4 Long & A., double end, 24" throats.
Punch and riveters, new Doty (2), one 35" stake and one 30 1/2" stake.
Punch presses, all sizes, (55).
Punch and riveter, new Doty, 30" stake.
Riveter, 3/16" Grant, on column.
Riveter, air, 6" gap Allen, cap. 1 1/2".
Riveter, air, 6" Allen, cap. 1 1/2".
Saw, No. 7K Atkins Kwick-Kut.
Rolls, 4' drop end corrugated.
Saw, Q. M. & S. No. 4-B universal, 33" blade.
Shear, 52" P. S. & W. pwr. squaring.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Slotter, 3 1/2" Rhodes vertical.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.

Send for our latest 44-page illustrated Catalog and Price List.

USED AND REBUILT MACHINERY

FOR SALE BY

A. M. Stoehr Machinery Co., 418 Mid-City Bank Bldg., Chicago, Ill.

Bolt cutter, 3-spd. Acme, 1" cap.
Boring mill, Lucas horizontal, 3" bar,
single pulley drive; 60" Bullard
motor drive, 220 v., 60 cy., 3 ph.
Bulldozer 75-ton Lourie hyd., m. d.
Grinders, No. 7 Gardner b. b., d. e.,
univ. tbl; Nos. 28-18" Besly dbl.
spdl. disc, complete; Detroit center-
less, arranged for belt drive.
Hammer, 800 lb. Erie, drop board.
Miller, 78"x22" Sellers planer type,
5 heads, heavy duty.
Planers, 56x56x12' Gray, 2 heads;
60x60x18' Gray, 2 heads.

Presses & pumps, hydraulic, 300 ton
Ferrin, 2-15 ton, comp. with pumps,
Presses, Bliss, arch., 2" str., 28" bet.
column; R. & K. dbl. ck., 36" bet.
column, roller feed, 24" stroke;
No. 161 Toledo knuckle joint.
Punch and shears, No. 8 Whiting,
36" thrt., arct. jaw, motor drive.
Riveters, 3-A, 4-A & 5-A, high spd.
Rolls, 42" Int. type bending, 4" cap.;
8' Pyramid type, 4" cap.; 12' bend-
ing, (not drop end) cap. 14".
Shears, alligator, D. & K., all steel;
Bliss rotary, 12 gauge.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

SCREW AND TURRET MACHINES.

11" Acme hand screw machine.
2"x24" J. & L., geared head.
No. 1 Pratt & Whitney screw mche.
No. 6 Warner & Swasey cone head.
3"x36" J. & L., geared head.
2" Warner & Swasey hollow hex.

LATHES.

14"x 6' Flather quick change.
15"x 6' Cisco q. c. g.
18"x10' Cisco q. c. g.
18"x 8' LeBlond q. c. g.
20"x20' LeBlond p. c. g.
24"x10' LeBlond p. c. g.
60" New Haven turning.

PLANERS AND SHAPERS.

16" Cincinnati shaper.
20" Smith & Mills, shaper, b. g.
24" Flather shaper, b. g.
24" Gould & Eberhardt shaper, b. g.
24"x24"x 6' Powell.
30"x30"x 8' Cincinnati.
36"x36"x18" Hamilton motor drive.
42"x42"x12" Powell, 3 heads.
36"x36"x12" Cleveland openside.
48"x48"x10' Niles, box table.

MILLERS.

No. 1 U. S. hand miller.
Miller & Crowningschild auto. fd.
Hendey, Lincoln type.
No. 7 Becker, Lincoln type.
No. 14 Brown & Sharpe plain.
No. 14 Rockford plain.
36"x30"x5' Ingersoll slab.

DRILLING MACHINES.

3-spindle Allen, h. s.
4-spindle Barr, power feed.
4' Drees radial.
4' Cincinnati Bickford.
32" Mechanics.
22" W. F. & John Barnes.
20" Champion.

GRINDERS.

10"x18" Sterling universal.
5"x18" Ott.
14"x36" Landis universal.
8" Heald rotary, magnetic chuck.
No. 50 Gardner disc, 30" capacity.
No. 6 Besly double disc.
No. 1 Diamond surface.

BORING MILLS.

No. 1 P. & H. horizontal drill.
No. 3 Niles horizontal borer.
42" Niles, 2 heads.
51" Bausch, 2 heads, heavy.
84" Niles, 2 heads, heavy.

MISCELLANEOUS.

Furnaces, cyanide hardening.
Hammer, Bradley 60 lb.
Hammer, Little Giant 100 lb.
Hammer, Niles steam, 2000 lb.
Presses, Lourie hydraulic, 20 & 30 ton
Punch, horizontal, 1" in 1".
Punch, Kling 60", 50" spacing table.
Punch & shear, Cleveland 42" throat.
Punch & shear, H. & J., 48" throat.
Shear, Lennox, rotary bevel.
Slotter, 12" Niles.
Swager, No. 1 Dayton.

USED AND REBUILT MACHINERY

FOR SALE BY

Tinners Machinery Co., 601 W. Monroe St., Chicago, Ill.

Brake, 8' D. & K. power, 3/16" cap.
Drill, Moline hole hog, 8-spindle.
Drill, 36" Aurora.
Miller, univ., No. 2A B. & S.
Punch press, No. 103 B. & O., b. g.

Shaper, 28" G. & E. b. g.
Screw mche., No. 8 W. & S., 3" cap.
Screw mch. No. 8 B. & O., 2 1/2" cap.
Shears, gap, Kutschied 53", 14 ga.
Welder, spot, Toledo 25 k. w.

Complete stock of sheet metal machinery and tools carried.

FOR SALE BY

Marr-Galbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Air compressor, 8x8 Chicago, n.s.b.
Air compressor, 12 cu. ft. Natl. belt.
Air compressor, 10x10 Ing.-Rand.
Arbor presses, Nos. 0, 1, 2 & 3.
Bolt cutter, 14" Morgan, double hd.
Bolt cutter, 14" Acme, triple head.
Boring mill, 24" Bullard, side hd. m.d.
Boring mill, 42" Bullard, 2-heads.
Boring mill, 54" Bement-M., 2 hds.
Boring machine, Rockford No. 2 horizontal, 3 1/2" bar.
Derrick, steel, stiff lg. 15-ton, 60' boom.
Die sinker, Jackson, 48"x13".
Drills, 26" Barnes & Rock'd, b.g., p.f.
Forging mach., 3" Acme, steel, m. d.
Forging and rivet header, 1" Ajax.
Gear and pinion cutter, No. 3 Sloan & Chace.
Gear cutter, No. 6 Brown & Sharpe.
Grinder, No. 1 Norton univ. t. & c.
Grinder, No. 2 Woods, univ. t. & c. m. d.
Grinder, No. 18-D Rowbottom.
Grinder, No. 24 Landis, 16"x48".
Grinder, No. 60 Heald, 19" arm.
Grinder, surface, No. 2 B. & S., m. d.
Grinder, Am. d. e. 7 1/2 h.p. 3/60/220.
Hack saw, Atkins, cap. 8"x8".
Hack saws, No. 5 Marvel, 6"x8".
Hack saw, 12x15" Racine, g.b., m. d.
Hammer, 2500 lb. Chbg., s. f. steam.
Hammer, 8000 lb. Chbg. dbl. frame.
Hammers, stm. s. f. 600, 1100, 1500 lbs.
Hammers, 40 lb. and 80 lb. Bradley.
Hammer, brd. drop 400 lb. Chamb.
Hammer, drop, 100 lb. Toledo.
Keyseater, No. 2 Davis.
Keyway cutter, 24" Morton, cap. 2 1/2".
Lathe, 6"x24" Wade, bench.
Lathe, 9" Hardinge, turret, bench.
Lathe, 16"x10" Monarch g.h., a.c.mtr.
Lathe, 18"x6" Hendey, q. c. g., t. a.
Lathe, 18"x8" Mueller, q. c. g.
Lathe, 18"x8" Cisco, q. c. g.
Lathe, 18"x9" Lehman, q. c. g. t. a.
Lathe, 18"x10" Bradford q. c. g. t. a.
Lathe, 24"x12" L. & S., chuck q.c.g.
Lathe, 24"x14" Porter, plain change.
Lathe, 24"x16" Putnam, taper attach.
Lathe, 30"x16" Lodge & S., q. c. g.
Lathe, 34"x16" American g. h., m. d.

Miller, vertical "C" Becker, s. p. d.
Miller, vert. No. 4-B Becker, for m.d.
Miller, No. 3-Bhvy. B. & S. pl.s.p.d.
Miller, No. 3-B Milwaukee.
Miller, No. 0 Kempsmith univ.
Miller, duplex Knight, table 8 1/2"x32".
Motor, 10 h. p. C.-W. 3/60/220/1200.
Mtr., 25 h.p. West. 3/60/220-440/1200.
Motor, 7 1/2 h. p. West. 3/60/440/1200.
Motor, 1 h. p. West. 3/60/440/1200.
Motors, 20 & 50 h. p., 3/60/220/900.
Oil separators, 1/2 & 1 1/2 bu. cap.
Pipe machine, 4" Williams, m. d.
Pipe machine, 6" Jarecki, s. p. d.
Planer, 20"x16"x3", 1 head.
Planer, 36"x36"x8" L. & D., 2-heads.
Press, No. 1 Toledo, o. b. i. plain.
Press, No. 52 Ferracute, punch, m.d.
Press, No. 19 1/2 Bliss, o. b. i., a. c. motor, new.
Presses, No. 87 Niagara, screw.
Punch, 30" thrt., 1"x1" m. d., s. e.
Punch, 17" thrt. 1"x1" A. J., m. d.
Punch and shear, Cleveland e.f.
"A J" for motor, 36" throat.
Punch & shr., 12" thrt., 1 1/2"x1 1/2", A. J.
Punch & shear, 24" thrt. 1"x1", A. J.
Punch and shear, s. e. 6" thrt. 1"x1".
Punch, coping, steel plate, 13" thrt.
36" die space, 2 holes 1"x1", m. d.
Radial drill, 2 1/2" Fostick, t. a.
Radial drill, 3" Dreses-Mueller.
Riveter, Allen jaw, 36" cap. 1 1/2".
Riveter, 1" Shuster rotary, belt.
Saw, Burke, 12" blade, capacity.
Screw mach., 10" P. & W. pl., w. f.
Screw mch. auto, 1 1/2"x18" Cleve. "B".
Shaper, 7" Rhodes, vise.
Shaper, 6" Pratt & Whitney.
Shaper, 16" Am., b. g., crank.
Shaper, 24" Niles-Bement-Pond, cr.
Shear, rotary, Quickwork 1 1/2", 36" throat, with 60" circl. attachment, motor, 3 ph., 60 cy. 220 v.
Shear, rotary, 12" thrt., cap. 22 ga.
Shear, rotary bevel, Lennox 4 1/2" m.d.
Turbo compres., Spencer 5400 c.f.m.
Turret lathe, 12" Gisholt, 2 1/2" h. s.
Turret lathe, 25" Gisholt, 3 1/2" h. s., t. a.
Turret lathe, 2"x24", J. & L., s. p. d.
Turret lathe, 18" W. & S. friction hd.

USED AND REBUILT MACHINERY

FOR SALE BY

Taylor-Hall Welding Corporation, 3 May St., Worcester, Mass.

BUTT AND SPOT WELDERS

Guaranteed to be in perfect condition.

Thomson 20-A-10 butt welder.

Thomson 10-A-7 butt welder.

Thomson 5-A butt welder.

Thomson 2C butt welder.

Thomson 2-A butt welder.

Thomson 25 automatic butt welder.

Thomson 40-A vert. butt welder.

Thomson 20-A vert. butt welder.

Thomson 10-A vert. butt welder.

FOR SALE BY

John Ramming Machine Co., First St. & Clark Ave., St. Louis, Mo.

Boring mill, 60" Colburn, 2 heads.

Boring mill, 42" Detrick & Harvey,

1 standard and 1 turret head.

Drill, No. 513 Baker, 5" capacity.

Drilling and boring machine, Barnes with 24" dia. worm geared rotary table.

Gear shapers, 2-36" Fellows.

Lathe, 16"x5' Prentice, q. c. g.

Air compressors, boilers, engines, generators, pumps, etc.

Write for complete list.

Lathe, 20"x8' Lodge & Shipley, q. c. g.

Lathe, 18"x5' Schumacher, Boye & Emmes, q. c. g.

Lathe, 15"x8'-6" LeBlond, q. c. g.

Lathe, 14"x6' Prentice, q. c. g. taper attachment.

Miller, No. 4 Cincinnati plain.

Miller, No. 2 Cincinnati plain.

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.

Baling presses, Champion sheet met.

Bolt threader, Acme 3 hds. 1 1/2" cap.

Chain hoists, Yale & Towne 1 1/2 & 2-ton

Demagnetizer, Walker.

Drill, Baush 18-spindle.

Drills, Baker.

Drills, Leland-G 1-sp. h.s., b.b. floor.

Drills, H. & W., Kokomo 1-spdl.,

Sipp 1 & 2 spdl., h. s., b. b.

Drills, 20", 24", 26 & 28" b. g., & tap.

Furnace, Holcroft 92 k.w. annealing.

Gear cutter, No. 3 B. & S., 26".

Grinder, Heald No. 60 cylinder.

Grinders, modern internal; LaSalle

No. 2 surface; Diamond wet tool.

Hack saws, 4x4, 6x6 & 2 Racine Jrs.

Atkins 4x4"; Racine 6x6"; Atkins

8x8 h. s., Marvel No. 2.

Hammer, Bement-Niles 1100 lb. st.

Keyseater, Davis No. 2.

Lathes, Schumacher & Boye, 42"x16'

q. c. g.; South Bend 24"x14"; South

Bend 21"x12" q. c. g.; Davis 22"x10';

Whitcomb-Blaisdell 22"x8' q. c. g.

LeBlond 19"x8'; q. c. g., American

20"x9'; Monarch 16"x8', all q. c. g.;

Monarch 11"x8' motor drive q. c. g.

tool room lathe complete 40 other

assorted sizes.

Milling machines, Kempsmith No. 2;

Ohio No. 20 plain; Becker "SD"

vertical, rotary table, 17200 lbs.;

American No. 1 1/2 universal; B. & S.

No. 3 vert., s.p.d., with rotary tbl.;

Ohio 34; LeBlond No. 3-H plain;

Brown & S. No. 3 pl.; Becker No.

4-B vert; B. & S. No. 3-B plain,

s. p. d.; Kempsmith No. 3 univ-

ersal; No. 1 Kempsmith plain.

Pipe machine, Oster 2", Curtis 3",

motor dr; Merrill 4" belt drive;

B. & K. 8".

Planers, Gray 28"x28"x6', 1 head;

Cincinnati 36"x36"x18' 2 heads.

Punches, W. & W. No. 17 punch and

shear.

Punch presses, Swaine No. 29 o. b. i.

Willard No. 4-A o. b. i., Bliss No.

19 o. b. i., (2), Federal No. 1 & 2.

Pyrometer, Thwing elec., with rec.

Rivet spinner, Grant.

Rolls, Badger 50" Pyramid power

rolls.

Screw machine, Gridley 1-spdl. 2 1/2"

auto.; Cleveland 1 1/2" auto.; P. & W.

No. 2 1/2 hand; Foster No. 3 hand;

Woods No. 2 tilted turret head;

Bardons & O. No. 7; National-A.

No. 52 auto., 4-sp., m. d. B. & S.

No. 00 automatic.

Shapers, Whipp 16" and 20"; Cinti.

20", b. g.; Ohio 20"; Ohio 16";

American 16" b. g.; S. M. 16";

Steptoe 14" Barker 24" b. g.;

American 24" b. g., Queen City

24" b. g., Barker 18" b. g.

Shears, 60" thr. rotary sliding, (2).

Welders, butt, Federal, 1 1/2" rds.

USED AND REBUILT MACHINERY

FOR SALE BY

Fitchburg Grinding Machine Corporation,

Fitchburg, Mass.

LATHES.

LeBlond 14"x6'.

Reed-Prentice 16"x8'.

Putnam 14"x6'.

Greaves-Klusman 18"x8'.

Perkins threading 21"x10'.

New Haven 32"x12'.

PLANERS.

42"x36"x22' Whitcomb.

32"x26"x16' Whitcomb, 2 heads.

22"x22"x6' Whitcomb.

17"x20"x8' Whitcomb.

30"x30"x8' Powell, 2 heads.

TURRET LATHES.

24"x24" J. & L., bar equipment.

24"x24" J. & L., chuck equipment.

3x36" J. & L., chuck equipment,
double spindle.

24"x26" Greenlee.

16" Reed-Prentice.

21" Gisholt.

MILLERS.

No. 1 Steptoe.

3"x24" Rockford.

24' Drees.

BORING MILLS.

24" Reed-Prentice.

RADIAL DRILL.

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

Good Machine Tool Bargains.

BORING MILLS.

36" Niles, 2 heads.

42" Bullard, 2 heads.

52" Bickford, 1 head.

4" Lucas horizontal.

36" American, 2 heads.

48" Niles, 2 heads.

6" Niles, 2 heads.

24" Rochester horizontal.

LATHES.

25"x12' LeBlond q. c. g.

27"x16' Lodge & Shipley.

20"x16' Bradford 4 step.

42"x24' Bradford triple gear.

MILLING MACHINES.

2B Brown & Sharpe, heavy.

No. 2 B. & S. universal.

No. 3 Brown & Sharpe vertical.

No. 4 Brown & Sharpe universal.

No. 4 Cincinnati, universal (2).

No. 3 LeBlond plain.

GEAR CUTTERS AND HOBBERS.

No. 3-28" Brown & Sharpe.

No. 12-B. & S., spur and bevel.

13" Schuchardt & Schutte hobber.

No. 4-36" Brown & Sharpe.

18" Gould & Eberhardt hobber.

No. 12 Barber-Colman.

PRESSES AND SHEARS.

No. 3 Toledo inclinable.

No. 183 Stiles Parker inclinable.

No. 69 N Bliss, double acting.

50" Bertsch power shear.

No. 4 Toledo.

No. 30 L. & A. incl.

No. 1 Long & A. punch and shear.

6' Bertsch shear.

4'-6' and 8' Robinson square shears.

GRINDERS.

18"x96" Norton cylindrical.

6"x32" Brown & Sharpe cylindrical.

6"x20" Webster & Perks.

Bath and Walker surface grinders.

16"x72" Brown & Sharpe cylindrical.

14" Pratt & Whitney vertical.

No. 60 Heald cylinder (2).

PLANERS.

24"x6' Gray, 1 head.

38"x28"x16' Gray, 2 heads.

24"x24"x8' Pond, 2 heads.

38"x28"x16' Gray, 2 heads.

SHAPERS.

15" Ohio plain, crank.

16" Queen City, b. g. crank.

25" Smith & Mills, b. g. crank.

16" Cincinnati, b. g. crank.

24" Queen City, b. g. single pulley.

20" Smith & Mills, b. g. sgl. pulley.

MISCELLANEOUS.

Automatic, 24" Gridley 4-spindle.

Automatic, 14" Gridley 4-spindle.

Drill, 3' Morris radial gear box.

Drill, 4' Bickford radial gear box.

Pipe machine, Curtis 24" to 12".

Send for stock list.

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Automatics, full, No. 2, No. 0 and No. 00 Brown & Sharpe.
Drills, 6-spindle Allen, h. s.
Gear cutter, 4" Waltham, (new).
Grinder, Norton 10x36.

Grinders, surface, No. 22, Heald.
Hobber, Nos. 3, 12-B & C, 4 Adams.
Miller, No. 13-B B. & S., production.
Miller, No. 0Y Brown & Sharpe.
Radial, 4' American sensitive.

Partial list; send us your inquiries.

FOR SALE BY

E. L. Klauber Machinery Co.,

320 South Third St., St. Louis, Mo.

Drill, radial, 42" Bickford.
Drills, 3-spindle Dwight slate.
Gear cutter, 32" Whiton.
Gear miller, automatic, 4" cap.
Grinders, electric bench, $\frac{1}{2}$ h. p. 110 volt a. c.
Lathe, bench, Stark, with collets.
Lathes, 9x14 Porter-Cable.
Lathes, 13x4 Adams short cut.
Lathe, 14x8 C. & J. quick change and double back gear.
Lathe, 19x12 semi-quick change, double back gear, 8' betw. centers has rais'g blocks to 29", bargain.

Lathe, 16x6 Prentice p. c. g., s. b. g.
Millers, hand, No. 0 Burke.
Pinion and wheel cutter, Stark.
Planer, 30"x30"x5' American.
Rivet spinners, Grant, (4).
Screw machine, Greenfield $\frac{1}{2}$ " cap.
Shapers, 14" Rockford.
Shear, serpentine, Lenox 4".
Tapping machine, No. 6 St. Louis.
Turret lathe, No. 3 Bridgeport.
Turret lathe, Drees back geared, p. f. to turret, bar feed and automatic chucks up to 14", bargain.

FOR SALE BY

Randle Machinery Co.,

1733 Powers St., Cincinnati, Ohio

Bending rolls, $\frac{1}{2}$ x10' cap., Kling.
Bending roll, $\frac{1}{2}$ x14' cap., No. 5 H. & J.
Bolt cutters, 14", 2" Acme.
Bolt cutters, 14", 2" Landis.
Bolt cutter, 4" Acme, s. s.
Boring mill, 10" Niles.
Boring mill, 96" Niles.
Boring mill, 72" Bullard.
Boring mill, 60" Niles.
Boring mill, 42" Bullard.
Boring mill, 36" Bullard, rap. prod.
Boring mill, 30" Colburn.
Brake, 8"x16ga Robinson hand, pwr.
Grinder, No. 19, 83" Besly.
Grinder, No. 41 Besly.
Grinder, 10x30, 48, etc. Queen City.
Hack saw, 6x6, and 12x16 Peerless.
Keyseater, Nos. 1 and 2 Davis.
Keyseater, Nos. 2 and 4 Mitts & M.
Lathe, 16"x 8" American, q. c., new.
Lathe, 16"x 6" LeBlond, l. c.
Lathe, 13"x 8" LeBlond, q. c.
Lathe, 18"x10' Boye & Emmes, q. c.
Lathe, 24"x10' Rahn-Larmon, q. c.
Lathe, 24"x12' Rahn-Larmon, q. c.
Lathe, 26"x12' Schumacher-B., l. c.
Lathe, 27"x16' Am. grd. head, q. c.
Lathe, 25"x14' Sidney, q. c.
Lathe, 30"x32' Pond, l. c.

Lathe, 32"x18' American, q. c.
Lathe, 24"x14' Pond, l. c.
Miller, No. 2 LeBlond plain.
Miller, No. 2 B. & S. plain.
Miller, No. 2 Cincinnati universal.
Miller, No. 2 B. & S. universal.
Planer, 26"x26"x12' W.-B., 2 heads.
Planer, 30"x30"x16' American, 2 hds.
Planer, 32"x32"x16' Gray, 2 heads.
Planer, 36"x38"x16' Gray, 2 heads.
Planer, 48"x48"x14' D. & H. opens.
Radial drill, 3' Morris plain.
Radial drill, 4' Bickford plain.
Radial drill, 4' Cincinnati-Bickford.
Radial drill, 6' American plain.
Shaper, 16" new Queen City cd. g. b.
Shaper, 20" Ohio b. g.
Shaper, 24" Barker geared crank.
Shaper, 28" new Queen City g. b.
Squaring shear, Toledo $\frac{1}{2}$ " x8".
Squaring shear, 3/16"x36" Niagara.
Squaring s., Loy-Nawrath, 3/16x10".
Turret lathe, 2x24 J. & L. 3x36".
Wheel presses, 150, 200 and 400 ton.
Dial indicator tester B. & S. \$12.50.
Electric drill, used 110 volts d. c. \$13.
Hand grinder $\frac{1}{2}$ h. p. used 110 volts d. c. \$15.

Also many other tools of various sizes and types.

USED AND REBUILT MACHINERY

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:

Cut-off mchs., No. 3 Modern (2).
 Drill, No. 38 Demco, with power feed.
 Pipe machine, No. 70 Forbes.

Exceptional values in USED TOOLS:

Bending machine, Champion.
 Drill, Avey No. 2, 3-spindle, 15" overhang, motor drive, with pump and piping.
 Drill press, 22" Prentice, rebuilt.
 Grinder, 24" Safety Emery Wheel Co. snag grinder.
 Grinder, Blount 1 1/2 x 14 wet tool, m. d.
 Lathe, 20" x 12" Reed.
 Lathe, 8x60 Fitchburg lo-swing.
 Miller, No. 5 Becker vertical.
 Miller, Kemp Smith No. 2 univ., complete with vise and dividing head.

Drill presses, Buffalo 21", back geared, power feed (8).
 Shaper, 20" Whipp, back geared.
 Straightener, No. 24 Corey.

Millers, Wisconsin hand, (3).
 Planer, 30"x30"x16' L. W. Pond.
 Planer, 60"x60"x22' Niles.
 Radial, 5' Pond.
 Screw machine, No. 24 Garvin.
 Shaper and slotter, No. 1 Rhodes.
 Thread miller, No. 12 Lees Bradner.
 Tilted turret, No. 6 Wood.
 Turret lathes, No. 4 Foster, (2).
 Turret lathe, No. 3 Cincinnati Acme.
 Turret lathe, 24"x26" Pratt & Whitney.
 Turret lathe, 21" Gisholt.
 Turret lathe, 24" Steinle.

FOR SALE BY

Brownell Machinery Co., 150 Pine St., Providence, R. I.

GEAR CUTTING MACHINES.

No. 3 Brown & Sharpe, 26x8, spur
 No. 2 Bilton automatic gear milling machines.

GRINDERS.

No. 12 B. & S. plain, 8x36 s. p. d.
 No. 11 B. & S. plain, 4x30.
 No. 1. B & S., automatic surface.
 Walker surface.

LATHES.

30"x30" Fitchburg.
 30"x14" Lodge & Shipley q. c. g.
 22"x20" Lodge & Shipley.

Blake & Johnson surface.
 No. 1 Norton tool and cutter.
 No. 2 Brown & Sharpe cutter.
 20" Blount wet tool.

MILLING MACHINES.

No. 4-A Brown & Sharpe universal.
 No. 3 G. S. Hendey universal.
 No. 4-B heavy B. & S. plain. m. d.
 No. 4 G. S. Hendey pl., vert. att.
 No. 3 G. H. LeBlond heavy plain.

No. 2-B heavy B. & S. plain.
 No. 2 Brown & Sharpe vertical.
 No. 3-H Becker vertical profiler.
 Ingersoll adjustable rail 43"x30"x8'.
 Newton slab 28"x28"x13'.

METAL CUTTING MACHINES

6"x6" Peerless h. s. hack saw.
 No. 7-K Atkins Kwik-Kut power hack saw 8x8.

12" H. & R. metal cutting band saw.
 3" Hurlbut & Rogers accelerated speed cutting-off machine.

PLANERS AND SHAPERS

72"x48"x12" Pond, 4 heads.
 54"x42"x12" Gray, 3 heads.
 36"x36"x10" Woodward & Powell, heavy, m. d.
 32"x32"x8" Powell.
 24"x24"x6" Whitcomb.

17"x20"x4" Whitcomb.
 17"x17"x4" Whitcomb.
 24" Hendey friction shaper.
 15" Potter & Johnston shaper.
 Boynton & Plummer shaper.
 20" Smith & Mills shaper s. p. d.

SCREW MACHINES.

No. 6 Brown & Sharpe, q. f. h., 2"
 No. 2 Bardons & Oliver, q. f. h., 1"
 3"x36" J. & L. flat turret.
 No. 0 Brown & Sharpe wire feed.

No. 2-G Brown & Sharpe automatic.
 No. 0-G Brown & Sharpe automatic.
 No. 00 Brown & Sharpe automatic.

MISCELLANEOUS.

Broaching mche. No. 1 Lapointe.
 Centering mche., 4" Whiton double.
 Hammer, 125 lbs. Dupont power.
 Hammer, 200 lbs. Beaudry Champion

Magnetic chucks, 8x10 Taft-Peirce.
 Radial drill, 3' Prentice.
 Radial drill, 5' Prentice.
 Slotter, 12" Bement-Miles.

USED AND REBUILT MACHINERY

FOR SALE BY

Carlson Machinery Co., Inc.,

Davenport, Iowa

Boring mill, No. 3 Rockford horiz.
Boring mill, No. 3-A universal hor.
Centering machine, 4" Pratt & W.
Drill, 4" Sipp h.s.b.b., 8" overhang.
Grinder, 10x20 Landis universal.
Grinder, No. 2 Oakley univ., t. & c.
Hobber, No. 12 Barber-Colman.
Hobber, 24" Schuchardt & Schutte.
Lathe, 7"x30" Dalton bench.
Lathe, 13"x5" Sheppard.
Lathe, 18"x6" Lodge & Shipley.

Lathe, 14"x6" Hendey, geared head.
taper, draw in attach. & collets.
Miller, No. 14 Cincinnati univ.
Miller, No. 3-B Brown & S. pl.
Press, No. 5 Toledo o. b. i.
Riveter, 4" Cincinnati spinning.
Turret lathe No. 1 Pratt & W.
Turret lathe, 3x36 Jones & Lamson.
Turret lathe, No. 4 W. & S. pl.
Turret lathe, No. 6 Warner & S., p.
feed to carriage and turret.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Blowers, Nos. 3, 7 and 9 Sturtevant;
Nos. 4 and 2 Root.
Buffer, Hisey 3 hp., 3-ph., 220 v.
Drills, 20" C-O and Champion; 22"
and 25" Barnes; 24" Aurora with
tapping attachment.
Drills, radial, 24" American and
C-O; 34" Fosdick.
Grinders, emery, St. Louis & W.;
large stock new at 80% disc.
Grinders, disc, No. 6 Bealy and 14
Gardner.
Grinders, plain, 8x18" Ott; 10x36"
Norton; 8x36" B. & S.
Grinders, universal, Nos. 3 Ohio
and 12 B. & S.
Hammer, helve, 40 lb. Bradley.

Lathes, 14" C-J; 16" Monarch; 18"
Monarch; Lodge & Shipley; Fay
& Scott; 20" L. & S.; 24" F. & S.;
26" Whitcomb-B.; 36" American.
Lathes, No. 5A Potter & Johnston.
Millers, No. 2 Cincinnati & No. 3B
Owen, plain; No. 3 Cincinnati univ.
Planers, 30" Whitcomb; 60" Niles.
Presses, No. 5 S. & P. grd.; L. & J.
o. b. i.
Punch and shears, No. 6 L. & A.
12" thrt.; No. 17 W.-W.
Shapers, 24" Amer. b.g.; 20" D. & E.
Shears, rotary splitting, No. 134
Marshalltown 4" thrt.; 4" cap.;
No. 13 Pettingell.
And many others. Write for list 130.

Full Line of P. S. & W. Sheet Metalworking Machinery.

FOR SALE BY

Chas. Mellor Machinery Co.,

118-124 S. Clinton St., Chicago, Ill.

MILLERS.

Bearman & Smith vert. and horiz.
24" Binnse horizontal, boring.
30" Bullard plain.
32" Colburn.
No. 3 Kemp Smith universal.
No. 24 Rockford univ., vert. att., s.p.

No. 3 Brown & Sharpe universal.
No. 3 Kemp Smith plain.
No. 2 Rockford plain single pulley.
No. 2 Rockford plain.
Gooley & Edlund.
Large variety, smaller sizes.

SHAPERS.

20" Cincinnati geared crank.
20" Rockford geared crank.
20" Smith & Mills geared crank.
20" Steptoe crank.
17" Smith & Mills crank (2).

16" Ohio geared crank.
17" Flather, t. & l. pulleys (2).
16" Barker geared crank.
14" Gould & Eberhardt grd. crank.
14" & 12" Smith & Mills crank.

SCREW MACHINES AND TURRET LATHES.

No. 4 Warner & Swasey universal.
No. 4 W. & S., b. g., friction hd. (4)
No. 4 Warner & Swasey plain.
No. 3 Warner & Swasey (4).
No. 1 Warner & Swasey.
No. 0 Brown & Sharpe automatic.
No. 00 Brown & Sharpe auto. (5).

No. 2, 1, 0 B. & S. formers (12).
No. 2 Brown & Sharpe semi-auto.
No. 0 Brown & Sharpe semi-auto.
Large variety Fosters, Acme, V. O.
No. 53 Nat-Acme, motor, att. (5).
4" & 3" Cleveland (5).
5-spindle New Britain.

Several hundred lathes, punch drill presses, shears, grinders, etc.

USED AND REBUILT MACHINERY

FOR SALE BY

Rosenfeld Machinery Co., - 942-944 W. Lake St., Chicago, Ill.

Broaching machine, No. 2 LaPointe (New London), with broaches.
Milling machine, No. 2 Cincinnati universal, complete.
Miller, Becker vertical, Model CS, rotary table.
Motors, $\frac{1}{2}$ h. p. to 100 h. p., a. c. and d. c.
Press, hydraulic, Elmes 150 ton, new.
Punch press, 1-4P style, solid back.
Riveting hammer, High Speed S-A, motor driven.
Shear, power squaring, No. 296 Niagara, 14 gauge.

FOR SALE BY

Allegheny Gear Co., - 1013 Empire Bldg., Pittsburgh, Pa.

Broaching mche., No. 3 LaPointe, keyways to 1 1/2", squares to 3".
Drill, 2-D Colburn, 24" swing 2 1/2",
Drill, radial, Reed-Prentice, arm 5' traverse 34", No. 5 taper.
Gear cutter, No. 3A Cincinnati, 36" diameter, 10" face.
Gear shapers, "Fellows" No. 62, spur 35" d., 5" f., internal 25" d., 3" f.
Gear generators bevel, Gleason, both 11" and 15" straight tooth.
Grinder, No. 20 Bryant, deep hole chucking, range 12", swing 12 3/4".
Grinder, Landis 12"x66" plain whls., 18" dia., 1 1/2 and 2 1/2" face.
Grinder, No. 70 Heald internal, swing 15", grinds 11" deep.
Hoists, portable, crane, 2-ton.
Lathe, 32"x14' Bridgeford, direct mtr. drive, geared head, taper attach.
Miller No. 4 B. & S. universal complete, dividing head, taper att.
Planer, Bickett 36"x36"x12', heavy duty, direct con. with 15 h. p. mtr.

FOR SALE BY

Sun Machinery Co., Inc., 39 Hamilton St., Newark, N. J.

BORING MILLS.

36" Bullard v. t. l., with cutting lubricant system.
24" Bullard v. t. l., with cutting lubricant system.
42" Bullard, s. p. d.
83" Niles-Bement-Pond.
72" Gisholt.
110" Betts.
16' Niles.
16'-36" Niles.
5" Detrick & Harvey horizontal.
6" Niles horizontal.

RADIAL AND UPRIGHT DRILLS.

5' Baush, s. p. d.
6' Cincinnati-Bickford universal.
4' Bickford universal, s. p. d.
42" Cincinnati-Bickford, m. d.

MILLING MACHINES.

No. 4 Cincinnati high-power, s. p. d.
No. 3 Brown & Sharpe universal.
No. 5 Brown & Sharpe plain.
No. 1 Kempsmith universal.
120"x96"x20 Ingersoll, 4 heads.
No. 4 Cincinnati vertical, s. p. d.

LATHES.

38"x40' Johnson triple geared.
30"x20' Fitchburg.
30"x18' H. S. G., q. c. g.
24"x12' Lodge & Shipley, q. c. g.
18"x 8' Lodge & Shipley, q. c. g.
18"x 8' Monarch, q. c. g.

PLANERS AND SHAPERS.

10'x 7'x25' D. & H. openside.
10'x10'x36' Betts.
48"x48"x14' Patch.
60"x60"x20' Pond.
36"x36"x12' W. & P.
24"x24"x 6' Gray.
16" Gould & Eberhardt shaper.
24" Hamilton shaper.
15" Smith & Mills shaper.
16" Stockbridge.

MISCELLANEOUS.

Bending rolls, pyramid, 12".
Gear cutters, 36"x48" Brown & S.
Grinder, No. 60 Heald cylinder.
Grinder, No. 70 Heald internal.
Grinder, 14" P. & W. vert. surface.
Presses, various types and sizes.
Punch, No. 3 Hilles & J. dbl. end.
Punch, 72" H. & J., brand new.
Rotary shear, Lennox 44" thrt.
Rotary shr., No. 6 Quickwork new.
Screw machines, automatic.
Turret lathes.

Partial list only; own or have selling rights for over 500 machines of every description. Mail us your requirements.

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company, 10203 Quincy Ave., Cleveland, O.

12"x14 ga. Loy & Nawrath.
50"x18" Bertsch, 15" throat.

SHEARS.

Canton alligator, cap. 14' sq.
36"x18" gap, foot.

MISCELLANEOUS.

Automatic, No. 34 New Britain.
Band saw, 24" woodworking.
Drill, multiple - spindle Bausch,
No. 3 Morse taper.

Miller, No. 00 Brown & S., hand.
Press, No. 6 Niagara.
Punch, EF Cleveland, 72" thrt., m.d.
Riveter, High Speed 3A.

FOR SALE BY

Lee Machinery Company

3171 Bellevue Ave., Detroit, Michigan

Band saw, 12" S. & B. bench, with motor.
Grinder, No. 3 Abrasive surface, motor drive with motor, and 8"x20"
magnetic chuck.
Lathe, 16"x6" Bradford, with 12" 4-jaw ind. chuck, double b. g.
Lathe, 18"x8" Whitcomb-Blaisdell, with chuck.

FOR SALE BY

W. P. Little Co., West 9th & Front Sts., Cleveland, O.

PLANERS.

24"x24"x3' Gray.

26"x26"x8' Gray.
POWER HAMMERS.

50 lb. Beaudry.

75 lb. Beaudry.

SCREW HEAD SHAVING MACHINES.

2 No. 2 Garvin screw head shaving machines, with screw feed.

SPLITTING SHEARS.

4" capacity Columbus

4" capacity No. 22 Rock River.

MISCELLANEOUS.

15 ton metal wood hydr pneu. press.

No. 60 Heald cylinder grinder.

S-24 Yoder rotary shear.

E. G-22 Ferracute geared arch pr.

2"x34" Jones & Lamson turret.

No. 13 Niagara circle shear.

150 other tools in stock. Send us your inquiries.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Boring mill, No. 14 Beaman Smith
horizontal, floor type, 34" bar.

Boring mill, 48" Bement car wheel.

Die sinker, No. 2 Pratt & Whitney.

Die sinker, No. 3 Pratt & Whitney.

Die sinker, No. 4 Pratt & Whitney.

Drill, 32" Aurora, motor driven.

Drill, radial, 6' Dreeses full universal.

Grinder, 14"x96" Norton plain, belt.

Hammer, 2000 lbs. Chambersburg,
double frame, steam forging.

Hammer, 1100 lb. N. B. P., sgl. fr.

Lathe, 16"-28"x8" Putnam, gap.

Lathe, 26"-48"x14" McCabe, dbl. sp.

Lathe, 30"x26" Lodge & Shipley, belt,
q. c. g.

Lathe, 36"x30" Harrington.

Lathe, 36"x20" Sidney, q. c. g.

Lathe, 48"x12" Harrington, belt.

Miller, No. 2-B Rockford universal.

Milling mche., No. 3 Garvin duplex.

Pipe machines, 2", 4", 6", 8" & 12"

Oster, Cox, Williams, Eaton-Cole

& Burnham and Jarecki makes,

belt or motor driven, comp. stock.

Pipe machine, 2" Landis, belt.

Planer, 36"x36"x24", Bement, 4 hds.

Press, No. 734 Bliss trimming press.

Press, Chambersburg trimming, mtr.

drive, weight 12000 lbs.

Press, No. 37 Niagara, 1100 lb. fly-
wheel, solid back.

Rolls, 6" of 1" Beloit drop end.

Shaper, 30" Bement Niles, heavy

duty, traveling head, one head.

Shapers, 16", 20" and 24" Gould & E.

Shapers, 26" Stockbridge, with speed
box, (2).

Shear, Buffalo bar, cap. 3" round.

USED AND REBUILT MACHINERY

FOR SALE BY

J. Bleser Mfg. Co.,

16th & Madison Sts., Springfield, Illinois

Lathe, Niles B. 36x12, s. c. g.
Lathe, Bridgeport 26x12, s. c. g.
Lathe, Prentiss 30x16, s. c. g.
Lathe, engine, 16x8 G. & K., q. c.
Lathe, 14"x6" Monarch, q. c.

Miller, No. 3 Hendey universal.
Miller, Cinti. No. 3 univ., O. type.
Millers, bench, No. 3 Burke; Rockd.
Radial drill, 5" Bickford.
Shapers, Smith & Mills, 16", 12".

FOR SALE BY

McMullen Machinery Company,

Grand Rapids, Mich.

Automatics, 4" Cleveland, (2).
Cold Saw, No. 4 Greenfield.
Drill, 20" Wisconsin all geared.
Furnace, No. 200 Stewart, Crucible.
Grinder, No. 6-A Bryant.
Grinder, Wisconsin universal.

Lathe, 24"x26" Greenlee flat turret.
Pipe machine, 6" Merrill.
Press, No. 3 Manville AA.
Press, No. 54 Consolidated geared.
Press, No. 7 Consolidated geared.
Welders, No. 7-C Thomson, butt.

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

Automatic, Hartness tilted.
Automatic, 24" Gridley 4-spindle.
Broach, No. 3B J. N. LaPointe.
Drill, multiple, 12 sp., No. 12 Natco.
Drill, 14" Leland Gifford.
Drill, radial, 34" American.
Gear cutter, 36" Cincinnati.
Grinders, 10x36 & 12x36 Landis.
Grinder, surface, 12x12x24 Diamond.
Hammer, No. 2B Nazel, pneumatic.
Keyseaters, Nos. 0, 4 & 6 Mitts & M.
Lathes, 14x8 & 16x6 Hendey.
Lathe, 36"x16" Johnson, triple grd.

Lathe, 36"x18" Bridgeford, grd. hd.
Lathe, 36"x18" Schumacher & Boye.
Lathes, turret, 2A & 3A Warner & S.
Lathes, turret, 24" & 36" Bullard.
Mills, boring, 42" Bullard.
Mill, horiz., 3" bar, No. 1 Lucas.
Millers, plain Nos. 2, 3, 5 Cincinnati.
Millers, univ Nos. 2 & 3 B. & S.
Planer, opens., 36x30"x12" Cleveland.
Planers, 26x36x12 & 56x42x12 Cinti.
Presses, Nos. 65 & 66 Consolidated.
Shaper, 25" Springfield.
Slotter, 18" Niles.

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Boring mill, 96" Betts, 2 hds. motor.
Boring mill, 51" Bridgeport-Bullard,
2 heads.
Boring mche., 4" bar Betts, knee type.
Boring mche., 24" Fitch., knee type.
Hack saw, No. 4 Marvel 6"x6".
Drill, mult. 6-sp. Baush, in circle.
Lathe, 26/48"x18" McCabe, dbl. sp. ta.
Lathe, 26/48"x14" McCabe, dbl. sp.
Lathe, 40"x13" Putnam, tr. grd., cone.
Lathe, 36"x22" Springfield, tr. grd.
Lathe, 28"x12" Boye & E., q. c., taper.
Lathe, 26"x14" Rahn-Carpenter cone.
Lathe, 24/33"x14" Pond, raising
blocks \$475.
Lathe, 24"x12" Lodge & S., q. c. g.
Lathe, 20"x15" Reed, 5 cone 11 centers.
Lathe, 20"x15" Whitcomb-B., q. c. g., c.
Lathe, 18"x10" Flather, q. c. g., cone.
Miller, No. 3 Kemp Smith plain,
3-cone, late type.
Miller, No. 3 Cinti. univ. 5-step cone

Miller, No. 24 LeBlond, plain,
3-cone, double geared.
Miller, No. 1-A Milwaukee mfg., grd.
Miller, Model C Becker vertical,
table 56"x14".
Miller, No. 5B Becker vertical table
42"x14".
Pipe mche., 8" Saunders, motor drive
Pipe machine, 8" E. C. & B., belt.
Pipe machine, 8" Jarecki, motor.
Pipe machine, 4" E. C. & B., belt.
Pipe mche., 4" Curtis & Curtis, mtr.
Planer, 30"x30"x10" Cincinnati, 2hds.
Punch, shear, etc., Pels No. 16, type
BmEFGU, cap. 4" angles, punch
1"x1", 20" throat.
Radial 34" Mueller, gear box tap.
Radial sensitive, 3" American, cap.
Saw, cold 22" blade Gleim, 6" cap.
Shaper, 24" G. & E. belt \$475.
Shaper, 30" American, belt drive.
Shaper, 16" Stockbridge, belt.

Send for Complete Stock List.

Bargains ^{In New} and Used Tools

Used No. 3-A Warner & Swasey Turret Lathes (3)

MILLING MACHINES

Used Kemp Smith univ., all equipment including vertical attachment
Used No. 14 B. & S. universal.
Used No. 2 Cinti univ., cone head.
Used No. 2 B. & S. univ., cone. h.

Used No. 2 Oesterlein universal.
Used No. 2 Kemp Smith universal.
Used No. 2 B. & S. plain, g. h.
Used No. 3 Brown & Sharpe, plain.
Used No. 3 Cincinnati pl., vert. att.

LATHES

Used No. 3 Hardinge bench, 4" cap.
New 11"x8' Seneca Falls.
Used 14"x6' Bradford taper, q. c.
New 14"x6' Monarch, taper att.
Used 14"x6' Monarch, q. c.
Used 14"x8' Hendey, q. c.
Used 15"x6' Sunstrand semi-quick change chucks.
Used 16"x6' Hendey, q. c.
New 16"x8' Monarch, q. c.
New 16"x7' Chand Mfg. type.
Used 16"x8' Advance q. c., chucks.

Used 18"x8' Lodge & Shipley, q. c.
New 18"x8' South Bend, pl. change.
Used 18"x10' Monarch, q. c.
Used 18"x10' American, q. c.
New 18"-26"x8' South Bend gap.
Used 20"x10' Greaves-Klusman.
New 20"x8' Boye & Emmes, q. c.
New 20"x10' Monarch, q. c.
Used 24"x12' Boye & Emmes, q. c.
New 26"x14' Boye & Emmes, q. c.
New 26"x12' Boye & Emmes, q. c.
Used 24"x16' Boye & Emmes, pl. c.

SENSITIVE DRILLING MACHINES

New Allen Drills, 1, 2, 3 & 4 spdls.
Used 1-spindle Allen Drill.

Used 4-spindle Allen Drills.
Used 2-spindle Avey, ball bearing.

RADIAL DRILLS

New Drees 3' Simplex, speed box.
New Drees 5' multi-duty.

Used 5' Drees.
Used Hammond type B sensitive.

UPRIGHT DRILLS

Used 20" Hoefer wheel and lever fd.
Used No. 2, 22" Colburn mfg. type.
New 23" Snyder, tapping att.
Used 24" Mechanics, sliding head.
Used 24" Barnes camel back.

Used 25" Barnes, stationary head.
Used 26" Barnes, sliding head.
New 25" Snyder, tapping att.
New 28" Snyder, sliding head.
New 30" Snyder, sliding head.

MULTIPLE DRILLS

New Baush No. 4 hd. 22x54 1 spdl.

New Baush No. 4 hd. 30x46 22 spdls.

SHAPERS AND PLANERS

Used 16" Smith & Mills.
Used 16" Mattison, back geared.
Used 24" Cincinnati, b. g.

Used 24" Gould & Eberhardt, b. g.
Used 26"x26"x8' Flather, 1 head.
New 36"x36"x12' W. & P., 2-heads.

GRINDERS

New Morse No. 3 plain, 8"x40".
Used No. 10 B. & S. plain, 6"x20".
Used Gisholt tool grinder.
New Churchill internal.

New No. 9 Cincinnati internal.
Used Bridgeport No. 110 knife grinder, belt or motor drive.

TURRET LATHES AND SCREW MACHINES

Used No. 3A W. & S. universal.
Used No. 3 Superior.

New Wood tilted turret all sizes
No. 1 to 4 inclusive.

MISCELLANEOUS

Used No. 12 B. & K. pipe mch., m.d.
Used 4" B. & K. pipe mche, m. d.
New 4" Standard pipe machine.
Used 6"x6" Racine saw.
Used 6"x6" Peerless shap. saw, m.d.

New No. 2 Adams-F. gear hobber.
New No. 3-B LaPointe broach.
Used No. 18 Bliss press.
New Nos. 1, 2, 3, 4 and 5 Federal presses.

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A Few Listings From a Stock of 1500 "Restored" Machines

24^a Bullard New Era Boring Mill.
36^a Bullard Rapid Production.
No. 0 Giddings Lewis Horizontal.
No. 21 Lucas Horizontal.
8^a Bar Barrett Horizontal.
7^a Bar Barrett Horizontal.
72^a N-B-P Vertical Rapid Traverse.
96^a Niles Vertical.
10^a Niles Vertical.
10—16^a Niles.
Gridley 4 spindle $\frac{3}{4}$ ", $1\frac{1}{4}$ " $1\frac{3}{4}$ ", $2\frac{1}{4}$ ".
Brown-Sharpe Nos. 0, 00, 2 and 2-G.
No. 21 Besly Disc.
Landis Grinder 16x52".
Norton 6"x32", to 18"x96".
Diamond Face 30"x84".
Pratt & Whitney Vertical No. 14
Blanchard No. 16, 26".
Brown & Sharpe Univ. Nos. 1, 2, 13.
Brown & Sharpe Surface No. 2.
Dresses Plain Radial 4", 5".
5' Bickford Plain.
American Full Universal 6".
American Triple Purpose 3", 5, 6".
American Triple Geared 3", 4", 5".
Western Plain 5", 7".
Nasco Multiple No. 14, No. 32.
Baugh Multiple Nos. 2, 3, 4.
Cincinnati-Bickford $3\frac{1}{2}$ ", 5", 6".
Warner-Swasey Turret, Nos. 3A, 2A.
Warner-Swasey Universal No. 4.
Warner-Swasey Screw Mche. No. 4.
Libby Turret 18", 26".
Pratt-Whitney Auto Miller, 5", 12".
Brown-Sharpe Univ. Nos. $1\frac{1}{2}$ ", 2A, 4.
Milwaukee universal Nos. 3-B, 2-B.
Hendey Universal No. 1-B, No. 2.
Cincinnati vert., Grd. Hd. No. 2, 3, 4.
Cincinnati Pl., Grd. Hd., Nos. 2, 3, 4, 5.
Cincinnati PL Intermittent Feed No. 5.
Milwaukee Plain Nos. 2-B, 3-B.
B. & S. Gear Cutter, 72", 60", 36".
Cincinnati Gear Cutter 36".
Pratt-Whitney Gear Cutter, 90", 104".
Gleason Planer, 24", 36", 54".
Gleason Generator 3", 6", 11", 18".
Barber-Coleman Hobbers No. 12.
Lees-Bradner Hobber No. 5-A.
Gould & E. Gear Cutter 48", 72".
36 BM G. & E. Roughers.

P-Johnson Univ. Shaper, 15", 24".
G. & E. Shaper, 16", 20", 24", 32".
American Shaper, 16", 20", 24".
Queen City Shaper 28".
Cincinnati Shaper 16", 20, 24", 32".
Newton Rotary Planer, 84".
Sellers M. D. 10"x10"x24".
Pond M. D. 84"x84"x15".
D. & H. Openside 72"x72"x18".
Cincinnati M. D. 48"x48"x10".
Cincinnati M. D. 36"x36"x8".
Whitcomb-Blaisdell 24"x24"x12".
86"x30" Putnam M. D. Lathe.
72"x58" Niles-Bement-Pond M. D.
50"x20" Putnam M. D.
48"x36" Pittsburgh M. D.
48"x21" Niles-Bement-Pond M. D.
42"x39" Putnam M. D.
42"x50" American M. D.
42"x50" Putnam M. D.
42"x18" American M. D.
36"x20" American M. D.
30"x12" Lodge & Shipley Grd. Hd.
30"x12" American Geared Head.
26"x22" Boye & Emmes M. D.
28"x28" Hamilton M. D.
24"x10" American.
20"x10" Monarch.
18"x8" Lodge & Shipley.
18"x8" Greaves-Klusman.
14"x8" Hendey Tool Room.
12"x5" Hendey Tool Room.
No. 77 Bliss Press.
No. 55 Ferracute Drawing.
Lucas Forcing 15-Ton.
Metalwood Straightening 60-Ton.
No. 1 Bliss Toggle.
No. 37½ Bliss SS.
Metalwood Forcing 15-ton.
No. 20-C Bliss Inclinalable.
No. 4-P Ferracute.
Nos. 7 and 8 Greenbergs.
Ajax Upsetter S. B. $\frac{3}{4}$ ", $1\frac{1}{4}$ ".
Ajax Upsetter S. B. 2", $2\frac{1}{2}$ ", $3\frac{1}{2}$ ".
Acme Upsetter $1\frac{1}{2}$ ", $2\frac{1}{2}$ ", 3".
Pratt & Whitney Die Sinker No. 3.
Ingersoll Compressor 12"x12".
Chambersburg Drop 2500 lb.
84" Bement Rotary Planer.
No. 3 H-Jones Bending Roll.

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149 Broadway

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SPECIAL BARGAINS

-IN-

Used Milling Machines

B-1691—Practically Brand New No. 2½-B Kearney & Trecker Vertical Milling Machine, 21/617, with self-contained motor drive, with direct coupled motor, 7½ H. P. G. E. continuous rating A. C. 3 phase, 60 cycle, 440 volt, 1165 R. P. M. machine has table working surface 14"x54"; machine has power feeds in all direction; longitudinal 36"; across 15"; and vertically 20½"; spindle has No. 11 B. & S. taper hole and draw-in bolts, shipping weight, 5,800 lbs. **\$2,000.00**

B-1929—No. 4 Cincinnati Plain Milling Machine, 3-step cone, double back gear, 3½" belt, with oil pot, with triple friction countershaft, with one face milling cutter 6"x2", all power feeds thru gear boxes, with vise 7" wide, 2" deep, 5" opening, table working surface 16"x63", with three T-slots 13/16" wide, with two steel V blocks having six grooves and clamps, one angle plate 15"x12", three arbors, one yoke, with extra bearing **\$475.00**

B-1930—Cincinnati Plain Dividing Head, 13" swing, with index table, for No. 4 Cincinnati Plain Milling Machine **\$75.00**

B-1621—No. 4 Cincinnati Plain Milling Machine, 4-step cone, 3¾" belt, single back gear, double friction countershaft, 5" dial overarm, two arbor yokes, all power feeds, table working surface 16½"x52", with three T-slots ¾", one arbor 2"x28", one arbor 1"x15", Serial 2440-F, feed provided thru gear box on extended bracket **\$250.00**

B-1810—No. 3 Cincinnati Plain Milling Machine, cone drive, double back gear, round overarm, double friction countershaft, all power feeds, two arbors, three face mills approximately 6", 7" and 5", and heavy vertical attachment, fitted and Mohn vise **\$850.00**

B-1744—No. 2 Brown & Sharpe Universal Milling Machine, with triple friction countershaft, 1" arbor, 10" dividing head, tailstock and raising block, No. 3 swivel vise, change gears and 6" 3-jaw chuck, Serial 2164 **\$850.00**

B-874—18" Cincinnati Back Geared Plain Milling Machine, power longitudinal feed and countershaft **\$225.00**

B-910—Cam Milling Attachment and parts for No. 1 Cincinnati Plain Milling Machine **\$50.00**

B-1620—No. 2 Owen Universal Milling Machine, 4-step cone, 3" belt, single back gear, single friction countershaft, table working surface 8½"x38", 1" cutter arbor, cone belt feed **\$75.00**

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24"x10' Monarch Quick Change Gear Lathe.
No. 5 LeBlond Heavy Duty Plain Miller (Motor Drive).
4' Drees Plain Radial, Late Type.
24" Gisholt Turret, 2 Step Cone, 6¼" Hollow Spindle.
No. 64 Consolidated S. S. Press, 4" Stroke.
25" Smith & Mills Back Geared Crank Shaper.
No. 2 Brown & Sharpe Surface Grinder.
42" Bullard Vertical Boring Mill, 2 Heads.
No. 0 Giddings & Lewis Horizontal Boring Mill, 3½"
Bar, A. C. Motor Drive.
50 Ton Lucas Power Forcing Press.
60" Robinson Power Square Shear, 14 Gauge.

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BARGAINS

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- 1-56"x64"x18' Johnson.
- 1-45"x24' Pond.
- 1-30"x12' L. & S. Sel. Hd.
- 2-26"x18' Bridgeford.
- 5-26"x16' Niles-Bement-Pond.
- 10-26"x16' Bridgeford.
- 5-26"x12' Bridgeford.
- 44-26"x10' Bridgeford.
- 12-25"x12' LeBlond.
- 1-24"x20' Reed-Prentice, Grd. Hd.
- 1-24"x10' American.
- 6-24"x10' Cisco.
- 10-21"x10' LeBlond.
- 5-20x22"x12' American.
- 5-20-22"x16' American.
- 1-20"x10' Hamilton, M. D.
- 30-20-22"x8' American.
- 6-18"x9' Chard.
- 5-18"x8' Lodge & Shipley.
- 1-18"x8' L. & S. Sel. Grd. Head.
- 1-16"x14' American, Geared Head.
- 1-16"x14' Reed-Prentice, G. H.
- 1-16"x8' Lodge & Shipley.
- 1-14"x6' American Geared Head.

BORING MACHINES—Vertical

- 2-72" Gisholt.
- 1-60" Colburn.
- 1-42" Gisholt.
- 2-36" Bullard, New Era.
- 1-24" Bullard, New Era.

AUTOMATIC SCREW MACHINES

- 6-No. 6-A Potter & Johnston.
- 5-No. 5-A Potter & Johnston.
- 1-4" Cleveland.
- 1-1" 4-spindle Gridley.
- 1-No. 56 National Acme.

TURRET LATHES

- 2-24" Steinle.
- 1-24" Gisholt.
- 2-21" Gisholt.
- 1-No. 2-A Warner & Swasey.
- 1-No. 7 Foster, Geared Head.
- 2-No. 3 Cincinnati-Acme Univ.
- 1-3x36" Jones & Lamson.
- 2-2-spindle Jones & Lamson.
- 4-16" Cincinnati-Acme-Fox.

VERTICAL MILLERS

- 2-No. 6 Becker.
- 1-No. 5-C Becker.
- 2-No. 5-B Becker.
- 1-No. 3 Cincinnati.
- 1-No. 2B Milwaukee.
- 1-No. 1 Becker.

RADIAL DRILLS

- 1-5' Western Heavy.
- 1-4' Western.
- 1-3' Gang Sensitive.
- 2-3' American Sensitive.

DRILL PRESSES

- 1-No. 2 Bausch.
- 1-No. 14 Natco.
- 2-No. 4 6-spindle Foote-Burt.
- 1-6 spindle Henry & Wright.
- 1-22" Barnes, Self Oiling.
- 1-No. 24 Foote-Burt.
- 2-No. 14 Colburn.
- 2-No. 314 Baker.

GEAR CUTTERS AND HOBBS

- 1-No. 5 60" Brown-Sharpe.
- 1-No. 12 Barber-Colman.
- 1-No. 13 Brown & Sharpe.

MILLING MACHINES

- 1-No. 5 Ingersoll Comb.
- 1-No. 5 Cincinnati Hi-Power.
- 1-No. 4 Cincinnati, Hi-Power.
- 1-No. 3 Kemp Smith.
- 2-No. 3 Cincinnati.
- 1-No. 3 Brown & Sharpe.
- 2-No. 2B Milwaukee, S. P. D.
- 1-No. 24 Rockford, S. P. D.
- 1-No. 25 Becker.
- 1-No. 14 Cincinnati.
- 1-No. 3-A B. & S. Univ.
- 1-No. 1-D B. & S. Univ.
- 4-Type B Briggs.
- 1-No. 33 Kemp Smith.
- 175-Hendey & Becker Lincoln.

PLANERS

- 1-60"x48"x30' Hamilton.
- 1-42"x42"x22' D. & H.
- 1-42"x42"x12' Gray.
- 1-42"x36"x14' Cincinnati.
- 2-36"x36"x18' Cincinnati.
- 1-36"x36"x16' Rockford.
- 2-36"x36"x10' Cincinnati.
- 1-30"x30"x 8' Niles-Bement-Pond.
- 1-30"x30"x 8' Gray.
- 1-24"x24"x 6' American.

SLAB MILLING MACHINES

- 1-32"x32"x12' Ingersoll Duplex.
- 1-24"x13"x20' Ingersoll 2 vert. hds.
- 1-24"x24"x 8' Ingersoll.
- 6-24"x24"x12' Ingersoll.

GRINDERS

- 1-24"x96" Norton.
- 1-18"x96" Norton.
- 2-14"x72" Norton.

*Our Guarantee: Your money back if you
return a machine within 30 days*

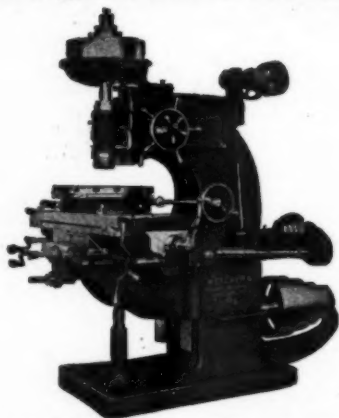
HILL, CLARKE & CO. of CHICAGO,

Telephone Haymarket 7640

645 W. Washington Blvd.,
CHICAGO, ILL.

Cable Address "Remand"

Rebuilt by Manufacturer
Nos. 5C and 6 Becker



Vertical Milling and Die Sinking Machines

No. 5-C BECKER Late Type Vertical Milling Machine, working surface of table 53"x14", range 54"x16"x18", vertical adjustment of head 8-3/4", all power feeds but feed of knee, three-step cone for 4" belt, with regular equipment including double friction countershaft. Rebuilt and Guaranteed in First-Class Condition...\$1750.

No. 6 BECKER LATE TYPE VERTICAL MILLING MACHINE, working surface of table 61"x18", range 62"x20"x22", vertical adjustment of head 12", all power feeds, three-step cone for 5" belt, with regular equipment including double friction countershaft.

Rebuilt and Guaranteed in First-Class Condition...\$3000.

Reed-Prentice Corporation
WORCESTER, MASS.

Machines Of Quality At Attractive Prices

- 3 No. 2A Warner & Swasey Universal Hollow
Hexagon Turret Lathes, with chucking
equipment, serials over 145,000, each\$1250.
- 1 No. 3A Warner & Swasey Universal Hollow
Hexagon Turret Lathe, with bar equipment,
also taper attachment, serial over 137,000 2000.
- 42"x18' American Geared Head Engine Lathe,
arranged for motor drive through all
geared head..... 3500.
- 4' American Triple Purpose Radial Drill, single
pulley drive through speed box..... 1750.
- 4' Cincinnati Bickford Radial Drill, late type,
single pulley drive through speed box.... 1750.
- 6' Cincinnati Bickford Radial Drill, late type,
single pulley drive through speed box.... 3000.
- 14"x6' Lodge & Shipley Selective Head Engine
Lathe, late type, with taper attachment... 800.
- 72" Keene Multiple Punch Press 1000.
- 16" Gould & Eberhardt Back Geared Crank
Shaper, arranged for motor drive, late type 550.

These tools are in stock for immediate shipment

The Eastern Machinery Co.
412 E. Pearl St., Cincinnati, Ohio

REAL VALUES

RADIALS AND UPRIGHT DRILLS

4¹, 5¹ & 6¹ Drees High Duty Pl., g. b. d.
4¹ & 6¹ Cinti.-Bick. Plain, g. b. d.
5¹ and 3¹/₂¹ American Triple Geared Plain Radials, gear box drive.
4¹ American Tr. Pur. Plain g. b. d.
3¹/₂¹ & 3¹ Mueller Plain Radial, g. b. d.
3¹ Reed-Prentice Plain Radial, g. b. d.
4¹ Hammond b. b. Sens. Radial, t. a.
3¹ American b. b. Sens. Radial, t. a.
3¹ Carlton b. b. Sens., tap. att.
Nos. 1 & 3 W. F. & J. Barnes Hor. Rad.
30² & 28² Snyder Upright Drill.
28² & 26² W. F. & J. Barnes Up., latest.
26² W. F. & J. Barnes Up. t. a.
25² Snyder Upright Drill.
25² & 22² Kokomo High Speed Up.

22² W. F. & J. Barnes Upright, t. a.
24² Aurora Upright.
24² Sibley Upright Drill.
24² Cincinnati-Bickford Upright Drill.
21² Cinti.-Bickford Upright Drill.
3-Spindle W. F. & J. Barnes Gang 26².
6-Spindle 20² Hoefler Gang Drill.
Detroit 5-Spindle Horiz. Drill Press.
Avey 4-Sp. b. b., No. 2 Morse Taper.
Leland-Gifford 4-Spindle, b. b. pwr. fd.
No. 1² Avey b. b. Drill, pedestal type.
D-No. 2 Colburn Heavy Duty Drill.
No. 0 Fox Multiple, 6-spindles.
No. 5 Fox Multiple, 12-spindles.
No. 13 Pratt & Whitney Mult., 8-spld.

ENGINE AND TURRET LATHES

42²x18¹ Amer. G. H., q.c., m. d., late.
30²x14¹ Lodge & Shipley q. c.
27²x14¹ Lodge & Shipley q. c. Lathe.
26²x12¹ Walcott q. c. Lathe, taper att.
24²x12¹ Lodge & Shipley q. c. Lathe.
24²x10¹ G. & K. q. c.
22²x12¹ Whitcomb-Blaisdell semi-q. chg.
21²x10¹ LeBlond q. c. Lathe.
20²x10¹ American q. c.
19²x10¹ LeBlond q. c. Lathe.
18²x10¹ Greaves & K. q. c.
18²x8¹ LeBlond q. c. Lathe.
18²x 8¹ Mueller, q. c. Lathe.
16²x10¹ Hendey, yoke hd., q. c., t. a.
16²x 8¹ Lodge & Shipley, q.c., late type.
16²x 6¹ Monarch quick change Lathe.
14²x 6¹ L. & S. sel. grd. hd., q.c., late type.

Nos. 2A & 3A Warner & Swasey, Univ. hol. hex. Turret Lathes.
No. 1-B Foster Univ. Hol. Hex. Turret Lathe, bar equipment.
No. 1-B Foster Univ. Hol. Hex. Turret Lathe, air chucks.
21² Gisholt Tur. Lathes, tap. att.
3²x36² J. & L. dbl. spld. Turret Lathe.
3²/₄²x40² Greenlee Tur., bar equip.
Nos. 2, 4, 6 Warner & S. Turret Lathes.
Nos. 2, 4, 6 Foster Turret Lathes.
No. 4 Brown & Sharpe Wire feed Screw Machine.
No. 4 Bardons & O. Turret Lathes.
No. 4 Millholland Turret, q. h., m. d.
1² Biggs Hand Screw Machine.

GEAR MACHINERY AND GRINDERS

No. 5-A Lees-B. Gear Hobber.
No. 6 Fellows Gear Shapers.
20² Ingle Gear Tooth Rounding Mche.
24² Cin. Auto. Spur Gear Cutting.
No. 4-48² B. & S. Auto. Spur Gear Cut.
No. 3-26² B. & S. Auto. Spur Gear Cut.
No. 3 B. & S. Planer Type Surface.
No. 3 W. & M. Auto. Surf., water att.
No. 13 B. & S. Aut. Spur & Bevel Cut.
84² Diamond Face Grinder, arr. for m. d.
No. 2 W. & M. Auto. Surface.
Walker Single Stroke Vertical Surface Grinder, 10² dia. magnetic chuck.
8² Heald Grinder & Surf. Style No. 200.
Nos. 70 & 75 Heald Internal Grinders.

No. 60 Heald Cyl., late type, complete.
Capital Internal, collect attachment.
Nos. 14 & 120 Gardner Double Disc.
No. 4-23² & No. 6-26² Gardner Disc.
No. 18-30² Gardner Pat. Mkrs. Disc.
No. 12-26² Besly Disc Grinder.
Nos. 1 & 3 Brown & Sharpe Universal.
6²x32² Norton Plain.
6²x15² Fitchburg Plain Grinder.
No. 1-4²x20² Morse Plain Grinder.
12²x36² Cincinnati Plain.
8²x30² Modern Plain, self-contained.
No. 2 Oakley Univ. Tool & Cutter.
No. 1 LeBlond Univ. Tool & Cutter.

EASTERN MACHINERY CO

We also Buy machinery.

Rebuilt and Guaranteed Machine Tools

SHAPERS AND PLANERS

- 24" Milwaukee heavy duty b. g. Crank.
20" Cincinnati heavy duty b. g. Crank.
16" G. & E. high duty b. g. Crank.
16" Gould & Eberhardt High Duty b. g. Crank.
16" Hamilton heavy duty, b. g., Crank.
16" Smith & Mills h. d., b. g., Crank.
16" Steptoe heavy duty, b. g., Crank.
16" Cincinnati Hvy. Duty b. g. Crank.
15" American Tool Works Crank.
14" Steptoe Crank.
36"x36"x12" D. & H. Opens. 2-heads.
36"x36"x8" Cincinnati Planer, 2 heads,
also has 4 speed geared speed box.
38"x38"x18" Niles Planer, 2 heads.
24"x24"x8" W. & P., 1 head.

MILLING MACHINES

- No. 4 LeBlond Univ., cone pu. complete
Nos. 3 and 2 B. & S. Univ., c. p., comp.
No. 1 1/2 Cinti. Univ., cone p., complete.
No. 1-B LeBlond Univ., cone pul. comp.
No. 1 1/2 Valley City Univ., c. p., complete.
No. 1 1/2 Owens Univ., cone pul. compl.
No. 1 Hendey Univ., cone pul. compl.
No. 5 LeBlond Plain, m. d., all geared.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
No. 3 Hvy. LeBlond Plain, cone pulley.
No. 3 Kempnith Plain, cone pulley.
Nos. 2 & 3 Cincinnati Plain, cone pulley.
No. 2 1/2 LeBlond Plain, c. p.
Nos. 0 1/2 & 1 1/2, Cincinnati Pl. c. p.
No. 1 Kempnith Plain, cone pulley.
No. 21 Brown & Sharpe Automatic,
latest type.
No. 5C Becker Vertical Miller.
No. 2 Brown & Sharpe Vertical Millers.
No. 4 Becker Vertical Miller.
28" Cincinnati Semi-Auto. Duplex.
18" Cincinnati Plain Mfg. Millers.
Gooley & Edlund, Briggs type, Mfg.
No. 6 Whitney Hand Miller.
No. 2 Bristol b. b. Hand Miller.
No. 2 Knight Milling and Drilling Mchs.

MISCELLANEOUS

- No. 5 Greenard Arbor Press.
No. 4 Atlas Arbor Press.
No. 55 Atlas Power Arbor Press b. d.
15-Ton Herc. Pwr. Arbor Press.
15 P30-Ton Lucas Pwr. Forc. Press.
No. 52 Nat. Acme Automatic.
No. 33 New Britain Auto. Chk. Mche.
No. 3-B J. N. LaPointe Broaching Machine, late type.
Nos. 2 & 3 LaP. Dble. Broach Mche.
1" Acme Class "A" Bolt Cutters.
1 1/2" & 2" Landis dbl.-spdl. Bolt Thread.
1" Landis Bolt Thread., lead screw.
24" Bullard rapid prod. Vert. Boring Mill, turret and side head.
30" King Vert. Boring Mill, turret head, power rapid traverse, m. d.
42" Bausch Vert. Boring Mill, 2-heads.
51" Niles Vert. Boring Mill, 2-heads.
51" Bullard Vert. Boring Mill, 2-heads.
Nos. 2 & 3 P. & W. Die Sinker.
No. 30-3/4 Bliss Arch Type Power Presses.
No. 102 Bliss-Con. Dbl. Crk. o.b.i. Pwr.
No. 4 1/2 Am. Can Co's o.b.i. Grd. Pwr.
No. 3 Bliss, Stiles pattern, Power Press.
No. 64 Con. S. S. Press.
No. 73 1/2 Bliss Trim. with side shear.
6' Toledo Pwr. Sq. Shear, 14 ga. cap.
84" Kut. Steel Con Pwr. Sq. Shr., 12 ga.
No. 552-52" Niagara Power Gap Squaring Shear, 16 ga.
No. 1 Davis Keyseaters, cap. 1" keywys.
No. 00 Baker Keyseater, cap. 3/4" kywys.
No. 5 M. & M. Keyseaters.
No. 3A High Speed Riv. Hammer.
40 & 60 lb. Bradley Helve Hammers.
600 lb. Chamb. Sgle. Frame St. Ham.
No. 12 P. & W. 2-spindle Profilers.
No. 1 Garvin 2-Spindle Profiler.
No. 1 P. & W. 2-spdl. Gun Bar. Drill.
4 1/2"x12" & 6"x24" P. & W. Thr. Mill.
Nos. 1, 2 2X & 2BG Garvin Auto. Tap.
18"x12"x12" Worthington dbl. steam dr.
Air Comp, cap. 700 cu. ft.
12"x12" Racine High Speed Pwr. Hack
Winfield Elec. Spot Welder, cap. to weld
2 pieces of 1/4" material.
6"x6" Racine High Spd Pwr. Hack Saw.
No. 3 Toledo El. Butt Welder, cap. 3/4".
10"x8" Ingersoll-Rand E. R. I. Air
Compressor, Belt Drive.

And Many Others. Send Us Your Inquiries.

108 E. Pearl St., CINCINNATI, O.
What have you to Sell?

We Are Pleasing Others

Let Us Have Your Inquiries—Large

ENGINE LATHES

14"x 6' LeBlond, l. c. g. and chuck.
14"x 6' Hamilton.
14"x 6' Porter, compound rest and taper attachment, l. c. g.
16"x 8' Lodge & Shipley, old style, compound rest, q. c. g.
16"x 8' Bradford, c. r., loose change gear.
16"x 8' Monarch, compound rest, standard pattern.
16"x 8' Prentice, compound rest, l. c. g., chuck.

18"x 7' Fulton heavy duty friction hd. pl. turning lathe, pan bed, dbl. tool post and countershaft, new.
18"x 8' Porter, 4-step cone, s. b. g., q. c. g. engine lathe, complete, new.
18"x 10' Star, 4-s. c., s. g., with 16" 4-jaw ind. chuck.
20"x 8' Reed friction head, with turret on carriage.
20"x 10' Boye & Emmes, c. r., q. c. g.
24"x 10' Greaves & K., c. r., q. c. g.
30"x 10' S. & B. c. r., loose change gear

TURRET LATHES AND SCREW MACHINES

No. 60 Brown & Sharpe auto.
No. 9 Brown & Sharpe auto., (2).
12" W. & S., friction head.
12" W. & S., friction head, with set-over turret.
14" W. & S., friction head, (2).
16" W. & S., friction head.
No. 4 Warner & Swasey, p. h., a. c. and b. f.
No. 2 Warner & Swasey, p. h., a. c. and b. f.
No. 4 Warner & S., g. f. h., a. c. and b. f.
No. 55 Nat'l Acme 4-spd. auto.

No. 3 Foster g. f. h. turret screw mch., with p. f. carriage and turret.
24" Cleveland model "A" auto. screw mch., with 5-hole turret.
No. 2-G Brown & Sharpe automatics (2).
No. 2 Brown & Sharpe turret forming (2).
1"x 7" Millholland, pl. hd., auto. ck., bar fd., hand fd., cross slide and turret, complete, new.
1"x 7" Millholland turret screw mch., pl. hd. auto. ck., bar feed hand fd. cross slide, with power fd. tur., new.

DRILLING MACHINES

No. 1-S Garvin duplex, (2).
24" American enclosed head, gear box, belt drive, Radials (2).
3' American sensitive radial with t. a. and elevating table.
4' Mueller, gear box, sgl. pulley dr.
5' and 6' Americans, tr. grd., 8-speed change, gr. box, sgl. pulley drive.
21" Aurora W. & L., square base, stationary head.
6' Western, with speed box, tap. att.
8' American triple purpose, with speed box.
No. 14 Colburn heavy duty.
No. 25 Foote-Burt heavy duty, (2).
12-spindle Moline, cam fd., two tbl.
No. 1, 7" overhang, single spindle, Allen, h. s., b. b. (3).

No. 14 Natco (2).
Fox multiple spindle, sliding head, arranged for 12 spindles (4).
3-sp. Edlund, high sp., ball bearing.
No. 22 Colburn, sgl. sp., hvy. duty, 1 1/2" cap., with solid spindle and flange for receiving multiple drill heads, new, (2).
No. 30 Natco, belt driven.
No. 44 Colburn, sgl. sp. heavy duty, 2 1/2" cap., with solid sp. and flange for receiving multiple drill heads, new, (2).
Colburn horizontal duplex drill, 2 1/2" cap. with rotating table, arranged for motor drive, new.
No. 34 Demco high speed bench drill with C spindle, new.

The Strong, Carlisle & Hammond Co.

—We Can Please You And Varied Stock To Choose From

MILLING MACHINES

No. 0 Bickett, hand, bench type, (3).
No. 2 Cincinnati vertical, s. p. d.
No. 3 Cincinnati plain, s. p. d. (2).
No. 3 Cincinnati h. p., s. p. d., vert.
No. 4-A B. & S. univ., m. d., vert. att.
Becker 2-spindle, with rotary table.

24"x18"x60" Ingersoll, Farwell vertical milling head.
No. 12 B. & S. manufacturing.
13-B Brown & Sharpe, plain manufacturing, (2).

METAL CUTTING TOOLS AND SQUARING SHEARS

No. 3 Atkins band saw, belt driven, new.

GEAR CUTTERS AND HOBBERS

26" No. 3 Brown & Sharpe automatic.

SHAPERS AND PLANERS

16" American, b. g. c., complete.
16" American back geared, single pulley drive, motor driven, 440 volt, 3 phase, 60 cycle mtr., t. b. control.
20" Kelly b. g. crank.
20" Hendey friction, (2).

16" Smith & Mills, back grd. crank.
22"x22"x 5' Putnam planers, (2).
24"x24"x5' Cincinnati, one head.
30"x30"x10' Woodward & Powell, three heads.
72"x72"x26' Fitchburg, four heads.

CENTERING MACHINES

Centering machines, single spindle Cadillac (2).

GRINDERS

No. 1 Brown & Sharpe universal.
No. 3 Brown & Sharpe universal.
No. 3 Cincinnati univ., latest type.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new, (2).
No. 10 Brown & Sharpe plain.
No. 14—46" B. & S. plain, (2).
6"x30" Norton plain, (2).
No. 24 Landis plain.
8" Heald rotary surface grinder with magnetic chuck.
No. 6-A Bryant internal.

No. 1 LeBlond cutter grinder.
J. B. Point "Yankee" drill grinders, complete, new, (2).
Type "DE" Hisey-Wolf internal.
No. 11 Brown & Sharpe pl. grinders.
Plain emery wh'l stand with column.
No. 1 Woods cutter and reamer grinder, complete, new.
No. 24 Woods cutter and reamer grinder, complete, new.
20" Whitney wet tool grinders, complete with countershaft, new, (2).
C3A Grand Rapids duplex drill grinders with wet att., new, (2).

MISCELLANEOUS

Bolt cutter, 1" National 2-spindle, with Landis heads.
Boring or drilling machine, No. 1-S Garvin duplex horizontal, (2).
Boring mill, No. 32 Giddings & Lewis, horizontal.
Broach, No. 2 double Lapointe.

Marking machine, Etchograph.
Pipe machine, 8" Jarecki, No. 88.
Pipe machine, 4" Oster.
Profiler, No. 12, 2-spl. P. & W. vert.
Scleroscopes, Shore, (4).
Squaring shear, No. 4120, 70' Stoll, motor driven, power.

Cleveland, Ohio; Detroit, Michigan

Bath's Guaranteed

Bolt Cutters

1½" Acme staybolt cutter.
1½" Landis, sgl. head, with dies.

1¼" Landis, double head, with dies.

Boring Mills—Vertical

44" Baush, 2 swivel heads.
48" Colburn boring mill.
51" Niles-Bement-Pond.

84" Ridgway 2 heads, gear feed, excellent.

Cranes

5 to 25 ton, all spans, both a. c. & d. c.

Drills

Allen single spindle ball bearing.
4-spd. Moline rail drill, 1½" cap.
No. 1, 8" wall radial.
21" Cincinnati Bickford, sliding head.
Several 20" and small sens. drills.

24" No. 25 Foote-Burt, with compound table
3-spindle Barnes drill press.
No. 41 Natco, round index table, 8-spindle.
No. 13 Natco, multi-spindle.

Forging Machines

4" Ajax, steel bed.
2" Ajax, cast iron bed.

¾" and 1½" Acme, steel bed.
250-ton Mesta steam hydraulic.

Grinders

84" Diamond face grinder.
18x96" Norton plain.
No. 20 Safety electric floor grinder, 10 HP motor, 32"x4" wheels.
Various electric floor grinders and grinding stands.
26" horizontal disc grinder.

Keyseaters

No. 00 Baker, capacity ¾"x8", tilting table.
No. 2 Baker, capacity 2"x20½".
No. 5 Mitts & Merrill, 3½" capacity.

Lathes

12"x5½" Carroll-Jamieson.
16" to 18"x6'-8" beds, tool room.
26"x14" Greaves-Klusman lathe.
30"x14" Boye & Emmes, double back geared.
36"x14" Schumacher & Boye, triple geared.
42"-60"x34" Houston, Stanwood & Gamble, grd. hd., mtr. dr.
60"x20" American, triple geared.

Tumbling Barrels

Several sets 18"x48" steel lined, square, with roller bearings and exhaust.

CYRIL J. BATH & CO., E. 70th &

Cleveland Stock

Hydraulic Equipment

175-ton R. D. Wood 4-column Flanging Press.
Morgan Hydraulic Riveter, 8' 6" gap.
Wood and Bement-Miles Hydraulic Riveters, 10' 6" gap.
15-ton Hydraulic Mfg. Co. Press.

Milling Machines

Style "B" Cooley & Edlund, table 54"x11½", (2).
20"x7½"x18" Oesterlein plain, belt drive.
No. 0 Rockford plain, 22"x6½"x15".
No. 2-B heavy Brown & Sharpe plain, 28"x10"x19".
No. 4 Cincinnati high power miller, table 64½"x16½".
Becker miller, model "C", table 14"x54".
Nos. 2 & 3 Pratt & Whitney Die Sinkers.

Planers and Shapers

36"x36"x14' Gray planer, 2 heads.
60"x60"x20' Cincinnati, 3 heads, very good.
48"x48"x14' Hamilton, 4 heads.
36"x12' and 48"x16' Detrick & Harvey openside planers.
12' Springfield, crank shaper.
24' Rockford and Queen City shapers.

Punches and Shears

84" throat, Long & Allstatter, capacity about ¾" thru ¾".
Kling Bros. horn press, 60" horn, flywheel 50" dia. 6½" face.
48" throat No. 4 Southwark, capacity 2"x1¼".
48" throat Bement-Miles cap. 1¼"x1".
36" throat Lennox rotary shear, capacity about ½" plate.
15" throat No. 14 Williams & White.
Lennox rotary bevel shear, ¾" capacity.

Turret Lathes and Screw Machines

No. 1-B Foster universal.	No. 4 Bardona & Oliver.
3"x36" Jones & Lamson.	1" Garvin screw machine

MISCELLANEOUS

Acetylene Generator.	Hammer, 100 lb. Bradley helve.
Blower, No. 4 Root, motor drive.	Pipe Machines, 8" Merrill.
Blowers, Nos. 1 & 2 Buffalo Forge.	Slotter, 48" Niles-Bement-Pond
Chain Hoists, ½, 1, 1½, 4 & 6 ton.	motor drive.

Machinery Av., N. E., Cleveland, O.

Worth-while Tools

42"x28' Johnson Lathe, 4-step cone, triple geared face plate drive; compound rest; loose change gears; a rugged, powerful lathe in good condition.....	\$1350.
38"x16' Gleason; triple geared face plate drive with 38" 4-jaw independent chuck; loose change gears; excellent cond. throughout	1050.
32"x14' Bridgeford, late type; 12 speed, self-oiling, geared head; quick change gears; used a few months, equal to new. With 20 H. P., a. c. Motor mounted on head \$2250. Without Motor.	2000.
20"x10' Boye & Emmes, quick change gears, double back gears, 3 step cone, taper attachment; new, in original crate.....	1000.
20"x12' Hendey, late type, like new.....	925.
18"x8' Greaves & Klusman mounted in pan, quick change gears, double back gears; used very little, like new.....	565.
14"x6' Hendey Tool Room Lathe with taper attachment, like new.....	675.

We specialize in lathes; 300 others in stock; from \$50 up.
Let us know your lathe requirements.

No. 1½ Hendey Universal Miller; single pulley drive with geared feeds and speeds; dividing head, vise; used few months like new.....	1350.
No. 2 Brown & Sharpe Universal, cone drive, geared feeds 3 ways dividing head, vise, c. s. Guaranteed in A-1 Condition.....	825.
No. 2 Brown & Sharpe Universal; geared long. and lateral feeds; cone drive, dividing head, vise, c. s. Excellent condition.....	685.
No. 2 Kempamith plain, geared feed 3 ways vise, c. s.; like new.....	690.
No. 2 Cincinnati Vertical, geared feeds, stationary head, equal to new	825.
No. 4 Brown & Sharpe plain, geared feed 3 ways; vise, c. s. Rebuilt and guaranteed.....	875.
No. 3 Garvin Duplex, heavy-duty type, sits on floor; rugged and powerful; perfect condition.....	750.
Cincinnati Automatic, table 11x57½"; extra fine condition.....	450.
No. 6 Becker Vertical; equal to new throughout.....	1750.
No. 2 Cincinnati plain, geared feed 3 ways; vise, c. s.; late type; rebuilt and equal to new.....	485.

A large assortment of Millers of all classes from \$50 up.
Let us know what you need.

3x36 late type, geared feed Jones & Lamson; equipped for bar and chuck work; practically complete; ex. condition.....	550.
---	------

Several others like above at lower prices.

New book just off our press. If you

A. R. Marsh Machinery Company,

at Moderate Prices

24" Gisholt with taper attachment; excellent condition.....	\$ 650.
No. 6 Warner & Swasey in fine condition.....	650.
No. 4 Bardons & Oliver in excellent condition.....	350.
100 other Screw Machines, all at bargain prices.	
25" Mechanics Drill, sliding head; power feed; back gears; reverse for tapping; excellent condition.....	275.
No. 2 single spindle, heavy-duty, manufacturing Colburn Drill; will drill 2" in steel; excellent condition.....	325.
4' American triple geared Radial; single pulley gear box drive; reverse for tapping; arranged for motor drive but without motor like new.....	1350.
2 1/2' Gang Radial; cone drive; reverse for tapping; good condition.....	325.
2 1/2' Taylor & Fenn Sensitive Radial, arranged for motor drive but without motor; geared power feed and speeds; like new.....	275.
20" Upright "BB" Drill power feed and back gears, new.....	115.
12x52 Landis Plain Cylindrical Grinder, late type; single pulley drive, like new.....	825.
No. 14 Brown & Sharpe Plain Grinder, 12x48; like new.....	850.
8" Heald Rotary Surface Grinder with magnetic chuck, ex. cond.....	225.
No. 75 Heald Internal Grinder, like new.....	325.
No. 2 Oakley Tool & Cutter Grinder with all fixtures, like new.....	365.
No. 103 Rivett Internal Grinder, like new.....	350.
No. 16 Stoll Press o. b. i.; 2" stroke, back geared, excellent cond.....	590.
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8x60" & 34x80" Fitchburg, Lo-Swing

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Acme 8" cap., wire feed column.
No. 4 Defiance, 14" capacity.
18" capacity Smurr & Kamen.
18" Milholland.
2x24 and 3x36 J. & L.

No. 1 Foster, 15/16" capacity, (2).
Warner & Swasey No. 2.
No. 52 National Acme.
14" 4-spindle Gridley.

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" American tool room.

16" O. & S., b. grd., new, low price.
24" O. & S. back geared crank.
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Nos. 3-A & 5-A Willard inclinable.
Nos. 1, 14, 2, 24 Robinson, new.

No. 6 Toledo, o. b. i.
No. 662 Toledo embossing.

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Electric Drills, Black & Decker.
No. 4 Duntley electric.
22", 24", 26", 28" and 32", sliding hd.
32" Hoefer, sliding head.

6' Ceiling drill.
25" Kokomo high speed.
4-spindle Reed sensitive.
44" Stover.
Hole Hog, No. 66-D, 7-spindle.

MILLING MACHINES

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No. 2 Kemp Smith plain.
No. 3 Kemp Smith plain, new.
No. 5-C Becker, vertical.
No. 25 Bilton.

No. 25 Becker plain, power feed.
No. 2 H Brown & Sharpe plain.
Oesterlein 24x74x18 plain.
Briggs "A" high duty, 24x8" table.
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16"x 42" Landis universal.
36" and 66" Yates plate.

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Schmitt cylinder grinder.
J B X, W. & M. tool and cutter.
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No. 20 Bryant, chucking.

MISCELLANEOUS

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Band saw, Napier 10"x 10".
Blower, No. 6 Piqua, pressure.
Blower, positive pressure, Leiman.
Boring mill, Colburn No. 3, tur. hd.
Boring mill, Sellers 50" car wheel.
Boring mill, 72" column.
Broaching mchs., 1 and 3 LaPointe.
Compressors, 6x8, 8x8 and 9x8.
Gear cutter, No. 3-26 B. & S.
Gear miller, Bilton No. 1.
Hammer, 150 lb. Standard drop.
Hammer, 500 lb. auto drop.
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Planer, 36"x 36" Gray, heavy duty.
Planer, 36"x 36"x 14' Gray, 2 heads.
Planer, 42"x 42"x 12' Gray, 2 heads.
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Riveting hammers, High Speed
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34" Gisholt, motor.

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5 ton, 3 motor, 34' 8" span.
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25-ton, 4-mtr., 71' 11" span, 5-ton aux.
40-ton, 4-mtr., 71' 11" span, 5-ton aux.
2-ton, 2-motor, wall crane, 19' arm.

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- 3-20" Kelly, cone, back geared.
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- 1-4 spindle Avey H. S., B. B.
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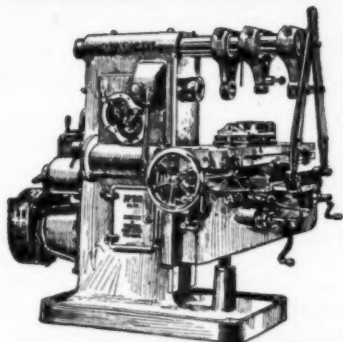
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 Lathe, 20" Chard, Q. C. G., single B. G., 3-step cone.
 Turret Lathe, No. 4 Warner & Swasey, single B. G., 3-step cone.
 Lathe, 36" American, Q. C. G. motor drive, B. G.
 Shaper, 12" Smith & Mills, 4-step cone.
 Shapers, 16" and 20" Rockford, B. G., 4-step cone.
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- 1—EG 5 Ferracute, 70 tons, comb.

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- 2—No. 73½ Bliss, flywheel.
- 2—No. 57 Toledo, geared, tie rod.
- 1—No. 56 Toledo, geared.
- 1—No. 65 Consolidated, geared.

TOGGLE PRESSES

- 1—No. 168½ Toledo, draw 12½" deep.
- 1—No. 3¾ A Bliss, draw 9½" deep.
- 1—No. 3¼-B Bliss, draw, 6" deep.
- 2—No. 1½ Bliss, friction clutch.
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- 1—No. 19 Toledo, flywheel, 24" thrt.
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No. 4 Cincinnati universal.
Model B Becker vertical, single pulley drive.

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148 N. 3rd St.



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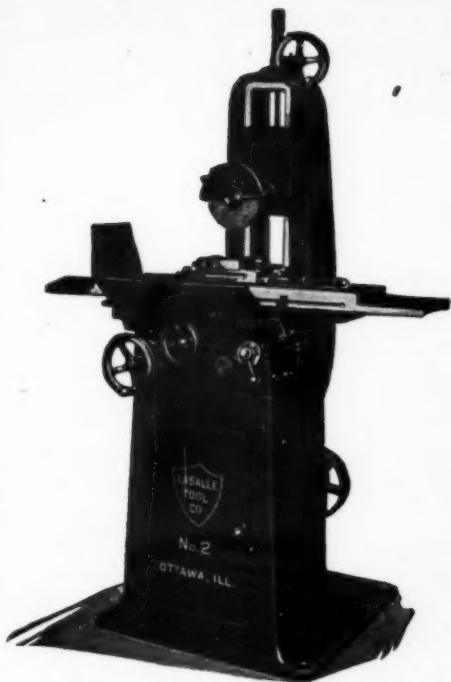
Charlestown Machine Co.

67 Walnut St.,

Fitchburg, Mass.

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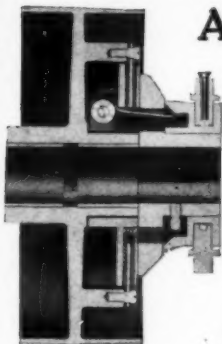
"A Dependable Grinder"

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Ottawa, Illinois, U. S. A.

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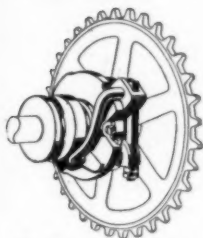


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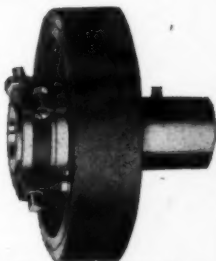
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